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A HANDBOOK OF
SYRIA
(INCLUDING PALESTINE)

Prepared by the Geographical Section of the Naval
Intelligence Division, Naval Staff, Admiralty.

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NOTE

This handbook deals with Syria (including Palestine) to as far north as the River Orontes and a line Antioch-Aleppo-Meskeneh. For details of the part of Syria beyond this line reference must be made to the *Handbook of Asia Minor*, Vol. iv, Part 2 (C.B. 847 C).

It was originally intended to issue a volume of Routes and Communications, with a Gazetteer of Towns, but, in view of the occupation of the country and the signing of the Armistice, it has been thought undesirable for the present to proceed with this.

The first nine chapters of this book deal with Syria as a whole, under such general headings as Boundaries and Physical Survey, Climate, Natural Resources, History, Inhabitants, &c. The remaining chapters enter into much fuller detail and treat separately, under much the same headings as the general chapters, the districts into which the region appears conveniently to fall. It should, however, be noted that little attempt has been made (nor is it possible for the moment) to fix precise geographical limits to the various districts into which the region has here been divided.

Conventional spellings of certain names, sanctioned by long usage, have been retained; for a list of these with their correct equivalents, see p. 668.

It should be pointed out that, under the circumstances in which the book has been compiled, the information cannot be altogether complete and that conditions are constantly undergoing change. The Admiralty will be glad to receive corrections and additions.

LIST OF MAPS FOR REFERENCE

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CHAPTER I

BOUNDARIES AND PHYSICAL SURVEY

SYRIA, in its broadest acceptation, is the country that lies between the eastern shore of the Mediterranean and the deserts of Arabia. In a narrower sense the name denotes that part of Syria which is not included in Palestine. This is the regular French usage. Under the Ottoman Government *Sūriya* (Syria) was the official name of the vilayet of Damascus, which lay along the eastern border of the country from the extreme south to as far north as latitude $35^{\circ} 25'$.

BOUNDARIES

Syria, in its broadest sense, has no fixed boundary on the east. Its frontier on that side is the limit of cultivation, which fluctuates according as the Bedouin or the sedentary population is the stronger. In recent years the policy of the Turkish Government and the advance of the sedentary population have extended the limits of Syria to the eastward and south-eastward. Starting from a point south of Akaba, on the Red Sea, the line crossed the Hejaz railway, ran northward near it on the east, turned further east so as to encircle Jebel ed-Drūz, continued near long. 37° to the neighbourhood of Hama, and then crossed diagonally to the eastward bend of the Euphrates, near Raqqah. After this the Euphrates was the boundary to beyond Rūm Qal'ah. The best physical boundary between northern Syria and Arabia, according to Blanckenhorn, is formed by the ranges of Jebel et-Tawil and Jebel Bishri, which stretch from Damascus, past Palmyra, and reach the Euphrates at Halebiyeh. This adds a broad belt of territory to the foot of the triangle whose apex is Aleppo and whose base runs from Hama to Raqqah. The building of a railway from Homs to the Euphrates would probably tend to establish some such frontier.

In the north the latest boundary of the vilayet of Aleppo

gave a line which started from Jonah's Pillar, slightly north of Alexandretta, ran eastward to the Giaur Dag (the Amanus range), followed the crest of the hills northward to a point nearly due west of Rūm Qal'ah, and then struck on to the Euphrates somewhat north of that place. Previous to 1910 the vilayet included territory east of the Euphrates (sanjaq of 'Urfa, &c.), and previous to 1915 territory to the north also (sanjaq of Mar'ash). There is no good physical boundary corresponding to the Turkish administrative line nor to former political frontiers. One possible physical line runs from the coast at the mouth of the Nahr el-Kebir (near Lādiqiyeh) up the valley of this river and the valleys of the Orontes and the 'Afrīn by Killiz and 'Aintāb to the Euphrates at Rūm Qal'ah (Blanckenhorn). Another begins just N. of the Orontes (El-'Āsi) and runs along the crest of the Amanus range to the head of the valley of the Gök Su, then down this valley to the Euphrates opposite Adil Bazar. Both these lines, however, exclude a considerable part of the Syrian coast and the port of Alexandretta. On the other hand, the further north the line is moved the greater is the wedge of Syrian territory between Asia Minor and Mesopotamia and the larger is the Turkish-speaking territory included in Syria. An alternative view, favoured by Blanckenhorn, is to treat Cilicia as part of Syria and to make the Taurus and Anti-Taurus ranges its northern limit.

In the south the boundary between Egypt and Syria, as drawn in 1906, was a nearly straight line from slightly west of Rafah on the Mediterranean to slightly east of Tabah on the Red Sea. The southern boundary was completed by a line starting south of Akaba and running NE. towards Ma'ān and the depression of El-Jafar, separating the vilayet of Damascus from the vilayet of the Hejaz.

It may be noted that the Hamād, or Syrian desert, as it is sometimes called, is excluded from Syria as here defined and assigned to Arabia. Both physically and ethnographically this region may be regarded as a transition area between Syria and Arabia.

Palestine.—In modern usage Palestine has no precise meaning. No definition can be got merely by discussing or attempting to follow the limits of the territory of the ancient Hebrews. The expression is best taken to be equivalent to Southern Syria and then defined in accordance with geographical and political conditions. On this assumption only the northern boundary presents any special difficulty. On the west side of the Jordan the Lītāni (Nahr el-Qāsimīyeh) from its western bend to its mouth is a definite physical limit. This boundary may be completed eastwards to the Jordan (Nahr Hāsbāni) in several ways. For statistical purposes it is convenient to adopt the northern limit of the kaza of the Merj 'Ayūn.

The amount of country east of the line of the Jordan that may be reckoned to Palestine depends chiefly on the political situation of Damascus in relation to Palestine. If Damascus itself be associated with southern Syria the difficulty disappears. All that portion of middle Syria that lies to the east of Jebel esh-Sharqi (Anti-Lebanon) may easily be separated from northern Syria and associated with Palestine. If, on the other hand, only a portion of the country along the Hejaz railway line, south of Damascus, is to be united to Palestine, a satisfactory line between the portion dependent on Damascus and that associated with Palestine is not easily found. In this handbook, merely for convenience of geographical treatment, a line close to Damascus has been chosen as the boundary between northern and southern Syria. Starting from the Nahr Hāsbāni, it skirts the S. and SE. slopes of Jebel esh-Sheikh (Hermon) and follows the Wādi Zābirāni and the Nahr el-'Awaj as far as Lake Hijāneh, into which the N. el-'Awaj flows.

EXTENT

The area of Syria, as defined by the latest Turkish administrative boundaries, has never been exactly measured. An estimate based on the detailed figures of several authorities gives 186,000 square kilometres, or about 72,000 square miles.

A quite moderate extension of the borders would give 80,000 square miles. Cuinet's total of 237,600 square kilometres (91,000 square miles) includes the sanjaqs of 'Urfa (7,000 square miles) and Mar'ash (5,800 square miles) and is otherwise a maximum figure.

The area of southern Syria (Palestine) can be given more exactly. Western Palestine, as far as Beersheba, has an area of 6,040 square miles (15,655 square kilometres). The country south of Beersheba as far as Akaba extends to 4,500 square miles (11,660 square kilometres). The whole of western Palestine, therefore, covers an area of 10,540 square miles. The corresponding territory east of Jordan, and as far north as Hermon, may be estimated to be of similar extent. The total area of southern Syria is, accordingly, about 21,000 square miles. This figure suggests that the 72,000 square miles of all Syria is an over-estimate rather than an under-estimate.

The extreme length of Syria from N. to S. is about 550 miles (from about lat. $37^{\circ} 20'$ to $29^{\circ} 30'$). The distance from the Red Sea to the Dead Sea, here included, is about 120 miles. The width of the country from the sea to the desert is generally less than 100 miles and seldom as much as 130 miles. If Blanckenhorn's geographical boundary on the NE. were followed (see above) the average width of the country from Damascus northward would approximate to 150 miles. From Raqqah, on the Euphrates, to the sea is 180 miles.

PHYSICAL FEATURES

The orographical system of Syria, though in appearance rather complicated, is in reality very simple in its broad lines. The salient physical features lie roughly N. and S. in parallel belts. They run with little interruption from the Anti-Taurus range which closes the northern end, to the Gulf of Akaba on S. ; a distance of 500–600 miles. The western or maritime belt consists of continuous mountain ranges and broken stretches of coastal plain ; the eastern belt is plateau and plain broken in the northern section by detached mountain groups and, in Anti-Lebanon, by an extensive mountain

system, then prolonged southward by a broad mountainous plateau. These two parallel areas are separated for their entire length by a great central depression which drains their inner slopes and is the only water bed of great length in the country. North of 36° lat. the cultivable region extends to the Euphrates which marks part of the eastern boundary of Syria; south of this line, it merges into the desert which stretches eastward to the steadily receding river frontier.

A general characteristic of the maritime range is that the main watershed lies towards the central depression. The western slopes are therefore, with a few exceptions, longer and less steep than are those on E. The drainage of the central depression is mainly effected by three great rivers—the Orontes, Lītāni, and Jordan—the first two of which take their rise in the lateral watershed in the central depression near Ba'albek. The Jordan rises much farther south, at the base of Hermon. Of these rivers, the Orontes flows northward at first and the Lītāni southward, and both eventually break away westward by gorges through the chain to the sea. The Jordan has a wholly southern course into the Dead Sea. Two other gorges intersect the maritime range, one north of the Orontes and the other south of it; through the first the River Jihān finds its outlet and, through the second, the N. el-Kebīr (Tripoli). The upper course of the Kebīr is so nearly on a level with the bed of the Orontes at one point that the upper waters of the latter river could with little difficulty be diverted into the bed of the former. The four gorges, almost equidistant from each other, constitute the principal divisions of the maritime range in northern Syria and they mark quite definitely the limits of the sections known as the Amanus, Ansariyeh, and Lebanon mountains. Farther south, the Nahr el-Muqatta' marks the only other break in the continuity in the chain, between the mountains of Galilee and those of Samaria and Judaea.

The Maritime Range.

The Amanus or Giaur Dagħ¹ is separated from the Anti-Taurus range by the Jihān gorge. The most northern stretch, in part, runs in a narrow strip along the verge of the central depression and, to westward, it becomes broken mountain country with lofty and partly isolated peaks. The chain continues southward in several parallel lines, its average alt. being some 3,000 ft., with bold and rugged peaks rising to nearly 6,000 ft. S. of Beilān it sweeps SW. to the high headland of Ras el-Khanzīr, then SE. to the Orontes gorge which is its southern limit.

J. Ansariyeh extends from the Orontes gorge southward to the N. el-Kebīr. Unlike the remainder of this section, the ridge of the most northern part, with J. el-Aqra', alt. 5,800 ft., as its highest peak, lies near to the coast and swings round the verge of the gorge, sending several long watercourses eastward to the central depression. South of this it resumes its normal formation, the ridge lying close to the depression as far south as the region of Hama. Here the mountain base spreads eastward, the slopes towards Homs falling gradually and merging into the plain. The western slopes throughout are more or less uniform, intersected by deep wādīs with a meagre amount of perennial water except in the southern part where water is plentiful. The lower western slopes are fronted by a line of lower hills the bases of which sweep inland between Lādiqiyeh and Marqab and again recede south of the latter place leaving broad stretches of intervening plain. Compared with Lebanon the range is lower, less rugged, and is more adaptable to cultivation. The main ridge runs more or less continuous and there are several high peaks, most of which lie slightly west of the watershed.

The Lebanon is the highest, most rugged and imposing part of the whole maritime range. Its northern limit is the N. el-Kebīr (Tripoli) and its southern extremity is marked by the N.

¹ This part of the range does not actually come within the scope of this Handbook. It is described in detail in the *Handbook of Asia Minor*, Vol. iv. Part 2.

el-Qāsimīyeh, the name given to the lower Lītāni. The main ridge runs in general SSW. without break, reaching heights of from 6,000 to 8,500 ft., and having a group of peaks near its northern end rising to 10,000 ft. The crest of the ridge lies uniformly close to the eastern side where the slopes are short and precipitous, but are less abrupt in its northern part where the base spreads towards the E. The western slopes are the chief and, in fact, the only aspect of consequence in the chain. They are intersected by wild and rugged gorges, and are watered by numerous copious fountains from natural reservoirs in the heart of the mountain.

The coastal plains facing this part of the chain are of minor importance. For the greater part of its length the mountain base comes down close to the sea and the plains do not at any part expand to great width.

South of the N. el-Qāsimīyeh, the range is continued by the mountains of Galilee which fall into two regions, a northern mountainous mass, virtually an outlier of the Lebanon mountains, picturesque and well-wooded, and a southern section showing somewhat different characteristics and consisting of chains of comparatively low hills for the greater part running E. and W. and enclosing a number of elevated plains, the principal of which is the Sahel el-Buttauf. In the north, the region attains a maximum alt. of 3,934 ft., in J. el-Jermaq; in the south the highest points are J. et-Tōr (Tabor), alt. 1,843 ft., an isolated mass of regular shape commanding the plain of Esdraelon and J. Tōr'ān, alt. 1,774 ft., south of the Buttauf. The western flank of this system spreads itself out in masses of rocky ridges intersected by deep valleys to the sea between the plain of Tyre and that of 'Akka and, here, forms the promontories Ras el-Abyadh and Ras en-Nāqūrah over which latter runs the Ladder of Tyre; on the east it overlooks the upper Jordan valley by a steep descent, especially in the northern part.

The continuity of the great mountain chain is now for a time broken by the plain of Esdraelon and by the valley of Jezreel (N. Jālūd), its extension eastward to the Jordan,

which together form what has been recognized from the earliest times as the easiest entrance to the interior of the country. The Esdraelon plain, traversed by the Nahr el-Muqatta', the most important river of Palestine south of the Qāsimīyeh, is roughly triangular in shape with a breadth at its widest eastern side not far short of 15 miles and is an almost level tract of unsurpassed fertility.

South of the plain of Esdraelon, the country again rises gradually into the mountain systems of Samaria and Judaea. In the first, the hill ranges are separate and comparatively open and appear to radiate from a centre at which lies the Merj el-Ghuruq, a peculiar elevated depression, alt. 1,180 ft. From this centre, towards the NW., runs off the ridge of Carmel (maximum alt. 1,808 ft.), to terminate in a bold promontory above Haifa; towards the N. returns the ridge of J. Fuqū', (Gilboa), alt. 1,648 ft.; while the main ridge continues parallel with the Jordan valley and consolidates as it approaches the confines of Judaea. The highest summits in Samaria are in the neighbourhood of Nāblus and include J. Suleimīyeh (Ebal), alt. 3,077 ft., and J. et-Tōr (Gerizim), alt. 2,849 ft. The Judaeian range prolongs the mountain system of Samaria southward, at first in a long zigzag range, known as J. el-Quds, the highest point of which, Nebi Samwīl, is 2,935 ft., and again to the south as a compact and rugged mass known as J. el-Khalīl, around Hebron, and it is here that the Judaeian highlands attain their maximum elevation (3,270 ft.), and compactness. South of Hebron the ridge spreads out upon a region quite distinct in character and, becoming more and more arid, descends gradually towards the southern desert.

The range in this section varies in width from 14-17 miles. On the east side of the watershed, throughout, the ground slopes rapidly in terraces from an average height of about 2,500 ft. above sea-level to a maximum depth in the lower Jordan and Dead Sea Ghōr of 1,300 ft. below sea-level. In the main, the eastern slope is a waste destitute of water, known in the southern part as the Desert of Judaea. Its most

exceptional feature is perhaps the great and abundantly watered valley system of W. el-Fār'ah which falls to the Ghōr between the bluff of Makhrūd and the frowning promontory of Qarn Sartabeh, alt. 2,400 ft. South of the latter a line of rugged mountain cliffs skirts the valley extending to the Dead Sea and far beyond, riven by profound gorges of which the most notable are W. el-Qelt, W. en-Nār, and W. el-Ghār. On the west side of the watershed, the range extends about half-way to the sea and is broken by innumerable deep valleys among which the two most prominent are W. Nāblus and W. es-Sarār. Westward, along the entire length of the range, extends the maritime plain, gradually increasing in breadth from a few hundred yards at the Carmel promontory to some 20 miles or more in the south. This is the most extensive plain of the whole Syrian sea-board: the northern half is known as the plain of Sharon and the southern as Philistia; both sections are traversed by several stream-beds, small in comparison with the rivers farther north, notably the Zerqa, 'Auja, and Rūbīn, outlets of the various intricate wādi systems of Samaria and Judaea.

Between the mountain country of Judaea and the plain of Philistia an undulating region composed of groups of hills intersected by a network of small valleys anciently known as the 'Shephelah' must not be overlooked; it forms, as it were, a transition zone between the plateau and the plain.

Continuing the high country of Judaea, the main range runs in a generally NE.-SW. direction, to traverse almost the whole of the Sinai peninsula. The crest, running 20-30 miles west of the W. 'Arabah and 40-50 miles from the Mediterranean coast, rises from an elevation of about 1,800 ft. in the confines of Judaea to about 3,040 ft. at J. Maghāreh near the Egyptian frontier. On the E. the range, very barren in character, falls by broad steps to the 'Arabah, while on the W. it slopes away to the maritime plain, here broader and more arid than farther N. and traversed by the great Wādi Ghazzeḥ and its affluents.

The Central Depression

The northern part varies considerably in width, from its commencement as a wide plain below Mar'ash to its termination at the foot of a group of low hills which forms the watershed at Amīr Mūsa Dagħ. This stretch falls northward, is marshy throughout, and has several lakes. Similar characteristics prevail on the reverse side of the watershed now falling southward. It carries the Kara Su to the marshy lake of Antioch where the valley spreads out into a great plain forming a basin at the meeting-place of the waters draining from N., S., and E.

Next rising southward, the depression becomes constricted between the flanking mountains and carries the central Orontes. In parts, the bottom of the depression is little more than the river channel, but at Jisr esh-Shugħr it opens out into a long, marshy, and fertile plain, El-Ghāb, on the eastern side of which there are several lakes; here the river bed lies close to the western side. In the region of Hama the continuity of the plain is interrupted by the eastern spread of the mountain base. The river takes a wide eastward bend, entering a gorge at Qal'at es-Seijar, and finally emerges upon the plain of Homs. Here the depression ceases and is marked only by the shallow marshy bed of the river and the artificial lake of Homs. Between the parallel Lebanon and Anti-Lebanon ranges it gradually resumes its natural axis and becomes a great valley plain, the spurs from the mountains projecting in low transverse undulations through which the river bed has cut deeply.

The low swell, alt. 3,600 ft., which forms the watershed at Ba'albek is the highest level of the depression and on it are the most remote sources of the Orontes and the Lītāni. From here southward the flat and fertile valley-plain spreads out to its greatest width and is intersected by the steadily deepening chasm of the Lītāni whose course lies close to the western side. Farther S. it is reduced in width by the spreading base of Hermon and becomes divided into two

parallel valleys by J. edh-Dhahr, a low ridge forced up into the axis of the plain; that on the W. carries the Nahr Lītāni, that on the E. the Nahr Hāsbāni. The plain reverts to its former width at the southern termination of the ridge and then falls in a series of terraced plateaus through which the Hāsbāni, forming the upper waters of the Jordan, flows in a deep chasm to the Bahret el-Hūleh (L. Hūleh).

The Hūleh basin forms the head of the great Jordan rift or depression, known as the Ghōr, perhaps the most remarkable physical feature of Palestine. From a few feet below sea-level at the outlet of L. Hūleh, the depression falls rapidly to 682 ft. below the Mediterranean at L. Tiberias (Sea of Galilee), the river running close to the eastern hills and about 4 miles from those of the W., which latter rise more than 3,500 ft. above the lake. South of L. Tiberias the valley for some 12 miles is only 1-1½ miles wide west of the river and some 3 miles wide on the east where the R. Yarmūk joins. Steep cliffs reaching an altitude of 1,800 ft. rise above the stream on the W. The valley then receives the Jālūd tributary and broadens at the plain of Beisān to about 6 miles on the west and the river runs about 2 miles from the foot of the line of hills on the east. South of the Beisān plain, the valley contracts to a total width of only 2-3 miles and is here at its narrowest part, the river flowing, for some 10 miles or so, near the base of the western mountains. Farther south the depression again opens out to a width of 6-8 miles; it is now flanked, on the west, by the highlands of Samaria and Judaea and, on the east, by the mountains of 'Ajlūn. Finally, the valley broadens to the great basin of the Jericho plain where it measures more than 14 miles across in the widest part, with the Jordan about in the middle. The Dead Sea, 50 miles long by 10 miles broad, with a surface level of about 1,300 ft. below the Mediterranean, fills the lowest section of the rift or Ghōr and washes the bases of the mountains that rise to an elevation of 2,000-3,000 ft. on either shore.

South of the Dead Sea, the great depression is prolonged

to the Red Sea by the wide W. 'Arabah which suggests a plain rather than a valley and is linked with the Dead Sea by an extensive *sabkkeh*, or marshy lowland. The 'Arabah is not a continuous trough with a slope in one direction, but is divided by a lateral watershed near the middle part. The valley is broadest in the north and rises some 2,000 ft. to the watershed where it contracts, widening again down the southern slope to the Red Sea, though less so than in the northern section. The whole 'Arabah depression is enclosed on both sides by escarpments which are precipitous in places but especially so on the east.

The Eastern Plateau

In northern Syria the country east of the depression rises abruptly in broken and difficult acclivities to the great plateau of Kurd Dagh which falls eastward to the Euphrates in easy rolling downs; it is fertile in general, but there is very little water. The western section is partially isolated by the wide valley of the 'Afrin Su and S. of it, the verge of the plateau is marked by broken highlands which extend toward Aleppo, sending their slopes southward to the lower level of the plateau. This southern extension is lined along its western verge by isolated mountain groups, and toward the E. is diversified by numerous *tells*; but all is treeless and practically waterless. In general, however, this northern plateau is fertile, and, where it merges into the desert, tongues of arable and barren lands interpenetrate along the irregular border.

Beyond the Hama bend of the depression, the fine fertile plain of Homs extends from the banks of the Orontes far eastward to the desert and southward to the commencement of the Anti-Lebanon mountains. This extensive mountain system separates the plain from the depression and throws a series of lofty limestone chains back upon the great abutment of Hermon the lower slopes of which are basaltic. The chains in some cases have peaks of over 8,000 ft., and are separated by fertile

uplands, but in their northern parts they are barren. The Hermon massif is the southern termination of the Anti-Lebanon system and marks the northern limit of the plateau which borders the Jordan valley. Along the eastern side of the range, toward Damascus, low ridges shoot out in a north-easterly direction across the plain to the desert which here and there approaches close to the mountain base.

At Damascus the plain opens out in a fine fertile and abundantly watered tract of irrigated gardens, as far east as the desert lakes and south to the Nahr el-'Awaj. The latter marks the division between the calcareous country to the north and the basaltic country to the south. Further S. the great wheat-growing but scantily watered plain of Haurān extends treeless and studded with conical tells. E. of it are the lava tract of the Leja and the fertile, well-wooded Jebel ed-Drūz, a basaltic mass with peaks rising to over 6,000 ft. Still farther E. an arable tract lies against the western verge of the desert which is here marked by barren lava tracts.

The section of the plateau known as Jaulān lies over against the northern part of the Jordan valley and the Sea of Galilee; it is, in fact, the western extension of what, in its broadest sense, is called Haurān. It merges into the acclivities of Hermon on the N. and is separated from 'Ajlūn on the S. by the gorge of the R. Yarmūk. From an alt. of 3,625 ft. it steadily descends southward to a level of 975 ft. close to the Yarmūk, not including the line of volcanic peaks which run S. by E. from Tell el-Ahmar and rise to over 4,000 ft. The formation is basaltic and the surface is broken by numerous wādīs falling generally S. by W. The northern and middle parts are thickly covered with boulders of basalt but the southern area is smooth and more cultivated. It is in general fairly well watered and is a fine pasture country. The western face of the plateau falls abruptly to the Ghōr. The oak forests which at one time covered a great part of the plateau have disappeared and there are now only a few isolated woods and groups of trees. The Yarmūk roughly marks the southern limit of the 'basaltic flow'; immediately S. of it,

the formation of 'Ajlūn is limestone with some basalt on the northern limit.

South of the Yarmūk, the mountains again rise rather suddenly and maintain generally the character of broken wooded country to as far south as Wādi Hesbān. At about one-half of the distance, the system is divided by the deep valley of the Nahr ez-Zerqa (R. Jabbok), which cleaves the mountains almost to their base; the section north of the Zerqa is known as Jebel 'Ajlūn. The northern part of 'Ajlūn consists of a broad ridge of uneven tableland; farther south, the mountains reach their greatest altitude beyond Jordan, the highest summits attaining 4,000–5,000 ft. above the Ghōr. The western flank of 'Ajlūn, intersected by deep ravine-like gorges such as Wādis Yābis and Kefrinji, falls by rather steep slopes or steps with intervening terraces and fertile tracts to the narrow plain of the eastern Ghōr which is here some 2–3 miles in width. Eastward, the country slopes down gently towards the Hamād steppe. South of the N. ez-Zerqa, the mountain range continues without marked interruption to W. Hesbān and here embraces the whole district known as the Belqa; it is still a high broken tract upon which lies the still higher ridge of J. Ōsha' or Jel'ād extending NE. for some 7 miles and having an elevation of about 3,600 ft. above the Mediterranean Sea. For six or seven miles south of this summit the country is (or was) richly wooded and is very picturesque.

South of Wādi Hesbān the range spreads out to the high and wide plateau of Moab, dotted with many isolated tells. This part has an average elevation of 3,000 ft. above the sea, is apparently on a level with the eastern desert, and is bordered towards it by a chain of hills. North of W. Hesbān the western slope of the range towards Jordan, like the section farther north, is intersected by deep wādis with precipitous sides. Along the valley of the Jordan to as far south as the Dead Sea the slope rises somewhat gradually from the Ghōr; but, farther S., along the flank of Moab the mountains fall much more abruptly and approach almost to the water's edge. The

highest summit of the section is the 'Atārūs ridge which rises precipitously on the southern side of W. Zerqa Mā'in, one of the many deep and narrow chasms which cut their way down to the Ghōr.

The ridge is then prolonged through the district of Kerak to Wādi el-Hesa, the general character of the region remaining much the same—a solid flat-topped mass of wild mountains, desolate in large part, rising precipitously from the very edge of the Dead Sea water. One particularly notable elevation in this section, J. Shihān (alt. 3,470 ft.), rises above the general level, not far south of W. Mōjib. Beyond the Hesa, the range continues in a south-south-westerly direction, falling down somewhat abruptly on the west side to the 'Arabah depression and sloping more gently eastward to the Jafar depression and the desert. The ridge maintains a general elevation of about 3,500 ft. and then rises to about 4,800 ft. at J. esh-Shera. Thence it is prolonged southward between W. 'Arabah and W. Mudheifein, falling at first gradually and then much more rapidly, to terminate at the Gulf of Akaba, near the outlet of W. Yitm.

CHAPTER II

CLIMATE

GENERAL

FOR climate the country may be divided into three regions : the north and mountainous parts, the coast, and the Jordan valley. While the general climatic conditions are fairly uniform over all three divisions, special differences will be shown to exist between the regions mentioned. The principal meteorological stations furnishing climatological data are :

(1) On the inland plateau between the sea and Jordan valley—El-Qareya, Qsāra, Nazareth, Jerusalem, Hebron, and El-Lātrūn.

(2) On the coast—Adana¹, Beirut, Haifa, Jaffa, Saronā, Gaza, and El-‘Arīsh¹.

(3) In the valley of Jordan—‘Ain et-Tābghah, Tiberias, Melhamīyeh, Jericho, and Qasr Hajleh.

Air Pressure and Winds

In winter the eastern Mediterranean is normally an area of low pressure which, as summer approaches, gradually travels over the desert to the Persian Gulf which then becomes a low pressure region. In consequence of this distribution of pressure the prevalent winds in the winter—winter conditions begin in October—are easterly, varying between north-east and south-east. The change to summer conditions becomes manifest in April, when west and south-west winds prevail with north-west winds inland. From June to September, when the low pressure system over the Persian Gulf is fully developed, westerly winds

¹ These stations are not actually in Syria, but are sufficiently near—to the northern and southern frontier respectively—to give a fairly accurate indication of climatic conditions, and, in the absence of Syrian stations in these parts, cannot be ignored.

with a tendency inland to north-west, are predominant. The predominance of the westerly winds is indeed very marked throughout the year ; thus at Beirut 33 per cent. of the winds of the year are south-westerly, at Haifa 38 per cent. arrive from the west, and at El-Lātrūn 38 per cent. are north-westerly. The least frequent wind, especially on the coast, is that which blows from the north-east. The characteristic of the west wind, the wind from the sea, is humidity ; that of the east wind, the desert wind, aridity. Fortunately, the west wind is predominant throughout the year, for the east wind—dry and exhilarating though it be when it blows in the winter—in the summer causes the atmosphere to be dust-laden and the temperature oppressive.

On the coast, almost throughout the year, there are daily sea breezes ; these are most welcome in the summer, for the west and north-west winds in particular bring comparatively cool air. These breezes arrive about 9 a.m. and reach the plateau west of Jordan about 5 hours later ; at sunset they die down, but soon start again, continue for a great part of the night, and bring dew to the parched land. When the sea breeze fails the nights are hot and relaxing, and there is no dew. The sea winds do not always rise to the plateau country, and when this is the case, though cool and refreshing conditions may prevail at sea-level, it can be stiflingly hot even at an altitude of 2,500 ft. As the breeze flows inland, moreover, it parts with much moisture, therefore at some distance from the coast it only exercises a cooling influence after it has blown for some hours.

Temperature

The climate of Syria is generally warm and in the rainless summer the temperature is high. A peculiarity of the climate is the fact that, proceeding from north to south and speaking broadly, the temperature decreases both in summer and in winter. This may be accounted for by the strength of the west wind which fails in the more mountainous north.

The mean maximum temperature at sea-level for the whole

country is 82–84° F. ; at the high-level stations the values are lower, while in the Jordan valley they are greater. The mean daily minimum nowhere falls as low as freezing-point and only at high-level stations such as El-Qareya, Jerusalem, and Hebron may frosts be expected, in January. Frosts, however, have been recorded at all stations except on the coast and in the Jordan valley. In the interior, where on the coldest days the 32° F. isotherm is found at a height of 1,600 ft., frosts seem to be more frequent : in each of the three years during which records are available at Damascus frosts are recorded several times.

Temperature falls slowly in the autumn, which is far warmer than spring. September, it is found, is warmer than June while the temperature of October exceeds that of May. It is only in November that a decided fall of temperature begins. Taking the fall of temperature with height into consideration the coast has the lowest mean temperature, inland temperatures rise increasingly with the distance from the sea and reach a maximum in the Jordan valley. The mean temperature, in point of fact, is 6° F. higher in the Jordan valley and at Damascus than on the coast. Great heat usually accompanies the blowing of the south-east wind (Sirocco). The air then becomes intensely dry, the relative humidity varying between 9 per cent. and 15 per cent. only. When the wind in autumn turns towards this direction, the south-east, summer conditions of heat and drought continue for a surprisingly long period.

The maximum of change occurs in April, the minimum in August. The change is about 50 per cent. greater on the exposed highlands than on the coast, where even in summer north winds are greatly feared and cause inflammation of the respiratory organs. The variation is least on the coast, greatest in the Jordan valley, and seems to increase still more in the direction of Damascus. It is surprising that the hottest days hardly ever occur in midsummer, but in May or June, although the mean temperature in July and August is higher. This seems to be caused by the prevalence of the hot-air currents

from south to east in the spring which are almost non-existent in summer. The mean increase of the daily temperature from 7 hr. to 13 hr., amounts to 10° F. for the coastal stations; in the mountains the difference is 13·5° F., and in the Jordan valley about 16° F. Lowest temperatures occur sometimes in December, but mostly in January with north-east and east winds of considerable force, generally after snow has fallen in the mountains.

The following list of extremes of temperature in 25 years will be instructive :

	<i>Maxima.</i>		<i>Minima.</i>	
	° F.	Date.	° F.	Date.
Haifa	104·0	{ May 1900 } { Oct. 1904 }	29·1	Jan. 1907
Carmel	90·7	June 1896	29·3	{ Jan. 1897 } { Jan. 1898 }
Gaza	104·0	May 1900	39·2	Jan. 1905
Beirut	101·3	Oct. 1898	30·0	Dec. 1898
Nazareth	110·5	June 1896	25·3	Dec. 1897
Jerusalem I	108·0	June 1894	25·0	{ Dec. 1897 } { Jan. 1898 }
Jerusalem II.	102·0	May 1903	21·2	Jan. 1907
Hebron	103·1	Aug. 1896	18·9	Jan. 1898
Tiberias	114·1	June 1899	34·0	Jan. 1896
Melhamiyeh	107·2	July 1896	33·4	Jan. 1907

Precipitation

Precipitation, on account of the great yearly fluctuations in periodicity, duration, and intensity, is the most important of the climatic elements. The average rainfall of the country, as a whole, is considerably greater than that of the eastern part of the north coast of Africa, though in other respects there is a general resemblance in the climate of both regions. The mountain ranges parallel to the coast lie across the track of the prevailing westerly winds, and furnish one of the main causes of abundant rainfall enjoyed in the north. On the coast the rainfall is moderate but it increases with the rise of the land as far as the slopes of the western range bounding the Jordan valley, beyond which it rapidly diminishes and is followed by a desert region with sparse and irregular winter rains.

The climate is sub-tropical with only two seasons of about equal duration of six months each—the rainy season coincides with the winter and the months immediately preceding and following the same, and the dry season with the summer months. Wet years occur in irregular sequence with dry ones, to the prejudice of the harvest and the very existence of the agricultural population. No definite law can be stated, but, in general, the wet are low-pressure years, the dry high-pressure years. It may here be mentioned that the winter depression over the Mediterranean has a continuation to the coast of Syria, and the farther east this depression spreads in any year, the greater the chance is there of an increased rainfall, the moist air being carried from the sea by south-west winds.

Rainfall shows a strongly marked seasonal distribution. In a rainy season, the extreme limits of which lie between mid-October and mid-May, the heaviest rainfall takes place in December and January. The months from June to September are nearly (and frequently quite) rainless. The heaviest rainfall occurs in the mountains of northern Syria. It rapidly diminishes, both towards the west and the east, as lower levels are reached, as is shown by the smaller amounts registered at Sarona and Damascus. Farther south a belt of heavier rainfall extends along the high ground from Nazareth to Hebron, but the amount rapidly diminishes towards the east until desert conditions prevail. Along the coast, where the maximum rainfall occurs in the autumn in contradistinction to that of the inner highlands where more rain falls in the spring than at any other season, the diminution is gradual and less.

The normal periods of the rainy season are : Jerusalem, October 14 to May 6 ; Tiberias, October 24 to May 3 ; Sarona, October 18 to May 12 ; and Beirut, October 3 to May 21. The mean length in days of the rainy season is as follows, the numbers in brackets, when given, denoting the differences between highest and lowest number recorded : Beirut, 230 ; Haifa, 214 (65) ; Nazareth, 201 (87) ; Jerusalem, 204 (89) ;

Tiberias, 191(76); Gaza, 192 (95). The average percentage of yearly rainfall in the different months is as follows :

<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May.</i>	<i>June.</i>	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>
25.3	17.0	12.0	4.9	1.1	0.0	0.0	0.0	0.2	2.4	12.3	24.8

showing that half the total falls in December and January.

The yearly period of rain fluctuates a good deal between the limits given. There are three periods of precipitation: an early period, known from biblical times as the 'former' rain; a second or middle period; and a third period, or 'latter' rain.

The start of the rainy season varies by some weeks. Should the rain hold back until the middle of November great anxiety prevails, for the early rains are eagerly awaited to moisten the land and thus prepare it for cultivation and sowing. The middle rains are violent, and by saturating the ground fill the springs and yield the water-storage for the year. The 'latter' rains fall in gentle showers which are essential to the full development of the harvest. In taking means, the distinction between these periods vanishes because their succession in different years takes place at different times. Thus, at Hebron 9 times in 13 years, in Jerusalem 18 times in 27 years, there was a recurrence of heavy rains between February and May.

Precipitation in the rainy season is not continuous, the rains being frequently interrupted by one or more days of clear sky which are the pleasantest in the year. On the other hand, slight rains occur now and then in the dry season.

In the mountains the amount of precipitation is about the same as in the United Kingdom but, as it is confined to half the year, the density is much greater. Thus the mean density, both in the mountains and on the coast, is about 0.39 in. per rain-day, in the Jordan valley it is slightly less, i. e. 0.34 in., which compares with 0.14 in. at Kew.

Palestine is the transition zone from Northern Syria, with its heavy rainfall in the Lebanon, to the almost rainless North Egypt. This is shown by a comparison of the mean yearly rainfall for the period 1896-1905 at the following stations :

<i>Beirut.</i>	<i>Haifa.</i>	<i>Jaffa.</i>	<i>Gaza.</i>	<i>Alexandria.</i>
34.6 in.	24.0 in.	19.7 in.	16.5 in.	8.3 in.

At El-Qareya, in the mountains, the rainfall is about 70 per cent. greater than at Beirut, bearing the ratio of about 7 : 1 to North Egypt.

From the agricultural point of view (1) the intensity, (2) the frequency, and (3) the times of the beginning and end of the rainy season are of paramount importance. As instances of the great fluctuations in these points it is noted (1) that the extremes of monthly precipitation in January at Jerusalem varied in 46 years between 13·4 in. and 0·118 in. ; that (2) in 1894 Tiberias had 67 rain days, whereas in 1901 it had only 26 ; that (3) the length of the rainy season varies from 2 to 3 months ; thus the end of the rainy season can be too early by 1-1½ months and the beginning may be a month late.

Of the rain-bearing winds the south-west is the most important from the point of view of precipitation, as it brings with it moist warm air from the sea. The importance of this wind will be gathered from the results shown in the following table, which illustrates the dependence of the amount of rainfall at Gaza on the south-west wind :

<i>February</i>	.	.	.	1899.	1900.	1901.	1902.	1903.	1904.	1905.
Rainfall in inches	.	.	.	1·77	4·53	0·32	1·26	1·97	0·51	2·40
No. of observations of SW.	.	.	.							
wind	.	.	.	26	36	0	12	21	14	31
<i>December</i>	.	.	.	1898.	1899.	1900.	1901.	1902.	1903.	1904.
Rainfall in inches	.	.	.	5	7·68	5·24	4·41	5·94	2·68	7·72
No. of observations of SW.	.	.	.							
wind	.	.	.	9	22	19	15	22	18	32

Rainfall statistics show that year by year the variations of the rainfall seem to correspond over the whole country (coast and mountains), so that for estimating wet, medium, and dry seasons the region may be taken as a whole.

Thunderstorms.—In the late autumn and at the end of winter the rains are frequently accompanied by thunderstorms. They average about ten annually, and occur mostly in November, December, March, and April. The average at Beirut is as high as 20·8 storms per annum, but at Bethlehem and Hebron

the average is not more than 4 and 6 respectively per annum. At El-Lātrūn though lightning is seen on 33·4 days in the year thunderstorms only average 8·1.

Snowfall.—Snow falls only on the northern mountains and the highlands west and east of Jordan and is practically confined to the months of December to March. In 22 rainy seasons at Jerusalem 14 had snowfall, averaging 3 days of snow. The fall is often heavy. Thus at Hebron on February 14–16, 1897, a heavy snowstorm, accompanied by thunder, covered the ground to a depth of 10–13 in., while in December 1879, at Jerusalem, 17 in., and in February 1874, 8 in. were measured. In the mountainous parts of Syria, as at El-Qareya, snow is expected on ten days a year, six of which occur in December and January, but at more southerly towns, such as Bethlehem (alt. 2,549 ft.), snow only falls on two days in the year, while at El-Lātrūn (656 ft.) there is one fall in about ten years. As a rule snow only lies for a day. East of the Jordan, according to Diener, snow is more frequent and lies longer.

Hail.—Hailstorms are not uncommon. In 25 years an annual average of 6·7 days of hail was observed at Beirut while at Jerusalem the average is 2·7, and at El-Qareya 7·8. As heavy hail is mentioned in the Bible it is interesting to note that hailstones an inch in diameter have been measured in Beirut. The storms occur from December to March and most frequently in February and March.

Dew is heaviest in May, June, and July—the minimum occurring in January. In the mountains west of Jordan the summer dew is so heavy, that sleeping in the open means a thorough wetting. This heavy fall is frequently caused by the passage of the warm moist sea wind over the rapidly cooling ground. Dew falls on an average about one day in four throughout the year.

Fogs are comparatively rare, the annual average of days of fog being 12 for the coast stations, and 15 for the highlands. In the plains and in the neighbourhood of Jerusalem summer ground fogs are not uncommon at night and in the early

morning, but they dissolve as the sun gains power. At 'Ain et-Tābhah on Lake Tiberias a total of ten days of fog in a month has been recorded more than once.

Wind Strength

Although wind observations in Syria are as a rule only approximations owing to the deficiency of wind-recording instruments, the data given in Table XXIV will serve a useful purpose for local comparison.

With respect to the coast stations the mean wind force is not great, the mean yearly average being about 1·5 per annum, as compared with 3-4 on the west coasts of the United Kingdom. The wind force at these stations is invariably stronger at midday than in the morning, the strength increasing with the daily rise of temperature. At Beirut the yearly mean force at noon exceeds the yearly mean of the day by 15 per cent. At Melhamīyeh, in the Jordan valley, similar conditions prevail, but in summer the midday wind force is relatively much stronger than the morning and evening, the afternoon mean in July being as high as 4·3 as compared with 0·5 in the evening and 1·1 in the morning.

Gales.—Gales are most violent in the north, but winds of Beaufort scale (8 or more) are not of frequent occurrence; at Saronā, for example, the mean number recorded is not more than 4·5 days in the year, while at Beirut the average number of stormy days is 6-7 and of gales 4-5 per annum. Gales occur most frequently at Beirut in December and January, and are almost unknown from May to August. On the Dead Sea violent gusts and storms are said to prevail in the winter till the end of April, coming mostly from the north. After April a period of calm accompanied by intense heat prevails.

Evaporation

Evaporation is a subject of the greatest importance in this dry land. At Jerusalem (station II) evaporimeters have been employed, but the results though interesting can, owing to difficulties of observation and the position of the instruments,

only be regarded as approximate, and even greater latitude must be allowed for results shown at stations of less prominence.

The following table shows the total amount of evaporation in certain months of the years 1899 and 1900 at Jericho, Bethlehem, Jerusalem (II), and Haifa, and the mean evaporation at Jerusalem for the period 1896-1905 and the 30-years' average for London :

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>	<i>July.</i>
	<i>1900.</i>			<i>1899.</i>			
	in.	in.	in.	in.	in.	in.	in.
Haifa	0.43	0.78	—	0.94	1.02	1.38	1.60
Jericho	4.09	3.19	(5.00)	11.90	16.30	18.70	17.50
Jerusalem (II)	1.85	1.02	2.09	4.53	5.40	5.20	4.80
Bethlehem	0.82	0.71	1.46	1.77	3.66	4.76	4.96

Mean Monthly Evaporation at Jerusalem and London

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
	in.	in.	in.	in.	in.	in.
Jerusalem	1.14	1.38	2.13	3.50	5.04	5.32
London	0.11	0.26	0.66	1.55	2.38	2.90

	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>
	in.	in.	in.	in.	in.	in.	in.
Jerusalem	5.32	4.80	4.33	4.60	2.28	1.65	41.4
London	3.07	2.36	1.37	0.62	0.24	0.10	15.6

The yearly evaporation at Jerusalem of 41.6 in. exceeds the mean yearly rainfall by about 16 in. This heavy evaporation means that if an empty reservoir was left to be filled by rainfall alone it would not hold an appreciable amount of water before November and would be dry during the whole summer till October. In the south, as the precipitation is less and the evaporation greater, the conditions in respect to moisture are worse. This is shown by the more or less constant level, during any one year, of the Dead Sea, which shows that the inflowing Jordan and other tributaries, notwithstanding the volume of water they discharge into the lake, only suffice to compensate for the loss by evaporation. On account of the excess of evaporation over precipitation the problem of careful water-storage is of paramount importance in this country. In

Lake Tiberias mid-April is the time of high water—mean levels are said to be reached in February and July. In the Dead Sea the highest level seems to be in February or March.

Conclusion

The mountains arrest the westerly winds blowing from the Mediterranean with the result that precipitation is greater on the western than on the eastern slopes. Hence it follows that springs on the eastern side are fewer and cultivation is confined to isolated areas. As the rainfall drains off with great rapidity the beds of the streams quickly dry up after the rainy season. It has been held by some authorities that precipitation in Syria has diminished in the course of centuries through the disappearance of a great portion of the forests, but this fact is disputed and it is certain that within historic times the climate and cultivation of the country cannot have appreciably changed.

West winds bring rain. The north-west wind moderates the summer heat, but on the other hand, a depressing east or south-east wind (sirocco), which parches up everything and is hurtful to animal and vegetable life, is occasionally experienced in the second half of May and just before the rainy season.

On the whole the climate of Syria, with the exception of the valley of the Jordan and some marshy districts, is not unhealthy, though intermittent fevers are not uncommon in these, among other, parts.

CLIMATOLOGICAL DATA

Beirut

Lat. 33° 54' N., long. 35° 28' E., alt. 115 ft. Period of observation (3 times daily) 25–30 years.

Beirut is situated on the north side of a small triangular plain which projects towards the coast from the middle heights of Lebanon, and has a low range of hills running along the north side of the triangle from the Beirut river to Cape Beirut.

Air Pressure.—The mean air pressure (with gravity correction) for 25 years is as follows :

<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
in.	in.	in.	in.	in.	in.
30·032	29·989	29·938	29·898	29·886	29·833

<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>
in.	in.	in.	in.	in.	in.	in.
29·733	29·754	29·863	29·957	30·016	30·024	29·910

In 25 years the maximum occurs 19 times in January and December. It may here be mentioned that the mean coastal pressure of Syria and Palestine is high. The January mean is 30·040 in., as compared to Greenwich 29·98 in. ; July 29·725 in. (Greenwich 29·985 in.) ; year 29·922 in. (Greenwich 29·96 in.). It is not, however, as high as is the case in the depression of the Jordan valley, where, at Tiberias, an absolute maximum of 31·222 in. has been recorded, and the mean pressures are : January, 30·772 in. ; July, 30·418 in. ; year, 30·611 in., the highest yearly mean on the earth.

Temperature.—The mean temperature varies from 55·6° F. in January to 81·5° F. in Aug., and does not differ much from other coastal stations. The tables show that the four months December to March are coolest, that the range is not great and is least in the summer and early autumn. The mean daily, mean monthly, and absolute maxima are : 89° F. (August), 92·3° F. (August) and 102° F. (May) respectively. The mean daily, mean monthly, and absolute minima are : 49° F. (January), 41° F. (January), and 30° F. (December). An average maximum of 86° F. may be expected as early as April when the temperature rises to above 90° F. and remains at this height till October. The average minimum is 68° F. in July and 70° F. in August, and sinks to 41° F. in January. In August the expectation of a maximum of 86° F. or more is 28 to 31 days. In January the temperature sinks on an average to under 41° F. every second year, in February every third year, and in March and December every fourth year.

Cloud.—The following table shows that the measure of

cloudiness is greater at Beirut than the average of ten other eastern Mediterranean coastal stations :

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>	
Beirut	5.6	5.6	4.8	4.2	3.2	1.4	
Mean of ten coastal stations on Mediterranean	4.6	4.6	3.8	3.7	2.8	1.3	
Excess of cloudiness at Beirut	1.0	1.0	1.0	0.5	0.4	0.1	
	<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>
Beirut	1.5	1.7	1.9	2.6	4.2	5.3	3.5
Mean of ten coastal stations on Mediterranean	1.1	1.3	1.8	2.5	4.0	4.7	3.0
Excess of cloudiness at Beirut	0.4	0.4	0.1	0.1	0.2	0.6	0.5

This excess is due to the neighbourhood of Lebanon which runs parallel to the sea and forms a barrier against the prevailing south-west and west winds. The cloud difference is greatest in the rainiest months, from December to March.

Defining a bright day as one in which cloudiness is equal to or less than 1, and an overcast day as one in which cloudiness is equal to or greater than 9, the following table has been constructed :

	<i>Mean.</i>	<i>Max.</i>	<i>Min.</i>	<i>Max.</i>	<i>Min.</i>
	<i>Bright.</i>	<i>Over- cast.</i>	<i>Bright.</i>	<i>Overcast.</i>	
January	3.3	4.1	11	0	12
February	3.1	3.7	9	0	7
March	4.7	2.7	12	1	7
April	5.2	1.7	14	0	5
May	7.0	1.0	15	1	5
June	14.0	0.04	22	5	1
July	11.5	0.08	22	4	2
August	11.6	0.12	26	4	1
September	11.3	0.08	21	3	1
October	11.2	0.3	17	1	2
November	5.2	1.9	10	0	5
December	3.6	3.6	12	0	8
Year	92.2	19.3	127	68	38

Precipitation.—The mean annual rainfall is 35.65 in. ; the maximum 51.4 in. ; the minimum 23.3 in. Seasonally precipitation is distributed as follows : winter 59.8 per cent., spring 18.5 per cent., summer 0.7 per cent., autumn 21 per

cent.—a distribution which holds good for the whole of Syria, though the average rainfall of Beirut is about one-third greater than the average of the whole country.

The maximum rainfall recorded in any month is 15·8 in. in February 1877; while the heaviest rainfall in 24 hours during the period 1876–1900 occurred in January in 7 years, in November and December in 5 years, in February in 4 years, and in March, June, September, and October in one. The greatest precipitation recorded on one day is 5·47 in. on October 14, 1895. The rain is of subtropical character—frequent in the winter, rare in the summer, months. From Table XIII it is clear that, on the average, every other day in January or February is a rain day, while in August it rains on the average once in five years. In the course of 25 years observations, there were 81 periods of rain lasting for 6 or more successive days, 15 periods of rain lasting for 10 or more successive days, and from January 31 to February 18, 1877, rain fell on 19 consecutive days with a total precipitation of 15·46 in. Rainless periods are, of course, more extensive: during the 25 years there were 37 periods when no rain fell on 30 or more consecutive days.

Snow, Hail, Dew, Thunder.—*Snow* has not been recorded at Beirut. Diener says ‘While great falls of snow have been recorded at Jerusalem as late as Easter week and in the East Jordan country caravans have been overwhelmed, Beirut on account of its maritime position is free from snow which does not come nearer to it than the heights of Bêt Meri.’ *Hail*, however, is not uncommon. During the years 1876–1900 there were, on an average, 6·5 days on which hail fell, a maximum of 12 occurring in 1878 and a minimum of 0 in 1884. Hail storms are most frequent in February and March. *Dew* occurs on the average 95 days in the year. While in England dew is heaviest in spring and autumn, the maximum falls at Beirut in May, June, and July, and the minimum occurs in January. *Thunderstorms* occur on an average 20·8 times a year, the maximum recorded being 33 in 1894, the minimum 11 in 1891, they are most frequent in November

and December. Sheet lightning is observed on the average on 25 days in the year.

Fog is extremely rare at Beirut; in 25 years it was registered on 19 days, mostly in spring.

Winds.—From Table XXII it will be seen that south-west winds are dominant at Beirut; east and north-east winds prevail in October, with a goodly proportion of windless days, averaging about 44, throughout the year, November being the calmest month. Northerly winds are most frequent in the middle of the day, while the south-west wind is most frequent in the early morning from April to October.

The mean wind force for the year is 1.36, which is small compared with 3–4 on the west coasts of Great Britain: the means at $8\frac{1}{2}$ hr., $14\frac{1}{2}$ hr., $20\frac{1}{2}$ hr., are 1.28, 1.60, 1.20 respectively, showing that the wind force rises with the rise of temperature. Calms are much more frequent in the morning and evening than at midday. The wind force is greatest in spring and late autumn.

Storms.—The average number of stormy days is 6.7 and of gales 3.1, during the year. The gales are not of exceptional violence, the greatest wind velocities recorded in twenty-five years being 37 miles per hour on December 11, 1900, 32 miles per hour on December 10, 1888, and 31 miles per hour on January 23, 1891, none of which reach Beaufort scale 8. Most of the gales occur in January and March, the directions being from south to west and from north to north-east.

El-Qareya

Lat. $33^{\circ} 49' N.$, long. $35^{\circ} 40' E.$, alt. 3,330 ft. Period of observation 10 years.

This station lies on the railway that runs over Lebanon from Beirut to Damascus and furnishes data by which the climate of the northern highlands can be determined.

Temperature.—The mean temperature, $72^{\circ} F.$, is highest in August and is then 1–2 degrees below other high stations farther south, such as Jerusalem and Hebron. The lowest mean temperature occurs in January, and is about 4 degrees

below the temperature of Jerusalem and Hebron. The highest mean monthly maximum and the absolute maximum recorded, 87.3° F. and 97° F. respectively, are considerably below the average, as also are the lowest mean monthly and absolute minima, 27.1° F. and 21.2° F. respectively. The climate is therefore cooler than that of the southern highlands and much cooler than on the coast and in the valley of Jordan.

Rainfall.—The mean annual rainfall is more than twice the average of the country as a whole being equal to 59.7 in., with an average of 85 rain days, and over one-third of this rain falls in the two months January and December. It will be useful to remember that the average rainfall of Syria is about equal to that of London, but, being confined to half the year is more intense. A maximum monthly rainfall of 19.75 in. has been recorded at El-Qareya both in February and March and 18.6 in. in December.

Cloud.—As regards cloud there is not much difference in winter between the various high stations, but in summer it is much cloudier at El-Qareya than at Jerusalem or Hebron. *Relative humidity* does not differ from the average of the highlands, the maximum 75 per cent. occurs, as elsewhere, in January, the minimum 57 per cent. in May.

Winds.—In the winter and spring, winds prevail from east to south-east and from south-west to west. In the summer the easterly factor disappears, and west and north-west winds prevail (the former being predominant). The north-west wind diminishes in the autumn and easterly winds reappear, the west wind being still the most prevalent. Calms are frequent; in the summer they average 48 per cent. of the wind observations and, in the other seasons, 30 per cent.

Jerusalem

Lat. $31^{\circ} 46' 40''$ N., long. $35^{\circ} 13' 30''$ E., alt. 2,200 ft. above sea-level.

The following facts, which are taken from the publications of the Palestine Exploration Fund, cover a period of 20–41 years.

Air Pressure (at 32° F.).—The highest reading during the period 1882–1901 (inclusive) was 27.795 in. in January 1898, the lowest reading was 26.860 in. in March 1898. The mean of highest readings for the period was 27.525 in. and the mean of lowest readings 27.208 in. The greatest number of highest readings occurred in January, of lowest readings in July. The greatest monthly range was 0.730 in. in January 1887, the least, in July 1900, 0.094 in. The greatest monthly range was observed 7 times in January, the least, 8 times in July. The highest monthly mean reading in the 20 years was 27.558 in., in December 1891; the least monthly mean reading 27.217 in. in July 1889.

Temperature.—The highest temperature observed in each year from 1882 to 1901 varied between 97° F. and 108° F. (June 18, 1894). In the same period, the maximum temperature for the year occurred eight times in August, five times in June, four times in September, once in July, once both in June and August, and once both in June and September. The maximum temperature reached, or exceeded, 100° F. in 9 years out of the twenty, while the total number of days recording this high temperature was 25, of which 7 occurred in 1888. The temperature reached, or exceeded, 90° F. on an aggregate of 676 days in the twenty years, 1887 having the maximum of 73 days, and 1898 the minimum of 12 days; the average per year was 33.8 days. The earliest and latest days in the year on which the temperature was as high as 90° were March 25, 1888, and October 23, in both 1887 and 1898. The lowest temperatures observed annually varied between 25° F. (observed on January 31, 1897 and January 1, 1898) and 36° F.

The minimum temperature of the year has occurred 10 times in January, 4 times in December, twice in March, one year it occurred in each of the months January, February, March, and December, one year in both January and December, and one year in both February and December. The minimum temperature fell as low as or below 30° F. in 14 out of the 20 years, the total number of days of this low

temperature being 62. In 1894 (an especially cold winter all over Europe) it fell as low as, or below, 30° F. on 14 nights. The temperature was equal to, or below, 40° F. on a total of 1,019 nights in the twenty years, giving an average of rather over 50 nights per annum. The earliest and latest nights in the year on which the temperature was equal to, or less than, 40° F. were May 25, 1882, and November 3, 1886.

The extreme range of minimum temperatures varied between 23° F. (February 1883) and 60·2 F. (April 1886). The smallest mean range, 28·5° F., occurs in January, the greatest, 46·1° F., in May. The mean range for the 20 years was 39° F.

The monthly mean of the high day-temperatures varied as follows during the 20 years 1882-1901: January, from 46·6-53·9° F.; February, 49-65·1° F.; March, 58-68·7° F.; April, 64·9-75·2° F.; May, 74·2-84·2° F.; June, 81·7-88·6° F.; July, 84·1-93·2° F.; August, 82·8-93·8° F.; September, 80·9-88·6° F.; October, 75·9-89° F.; November, 56·9-71·2° F.; December, 51-61·3° F. It is noteworthy that the temperature decreases very slowly in autumn till the great drop from October to November is reached, also that the mean temperature varies most in February and least in June. The highest monthly mean high day temperature in each year has varied from 84·7° to 93·8°. This maximum occurred once in June, three times in July, twelve times in August, twice in September, and twice both in July and August in the course of twenty years. The yearly mean high day temperature has varied between 69·4° and 74·3°. The mean high day temperature of the 20 years was 72°.

The monthly mean of the lowest night temperatures varied in January from 32·3-43° F.; February, 35·7-49·3° F.; March, 39·4-51·3° F.; April, 44-54·3° F.; May, 50·8-59·9° F.; June, 58·5-67° F.; July, 58·2-69° F.; August, 58·4-69·5° F.; September, 56·8-67·3° F.; October, 51·9-64·3° F.; November, 42·8-54·1° F.; December, 36·7-49·7° F. The drop from October to November is again noticeable. The lowest monthly mean low night temperature in each year has varied between 32·3° F. and 43° F. This minimum occurred

13 times in January, 4 times in February, 3 times in December. The lowest yearly mean low night temperature varied between 48.2° F. and 55.7° F. The mean low night temperature of the 20 years was 52.9° F.

The three coldest months of the year are January, February, and December ; their mean value for 20 years was 47.4° F., being 15° F. below the mean temperature (62.4° F.) of this period. The three hottest months are July, August, and September, their mean value for 20 years was 75.1° F. being 12.7° F. above the mean temperature of the same period. The mean annual temperature was lowest in 1894 with 60° F. and highest in 1901 with 64.4° F., the mean annual value for the 20 years being 62.4° F.

The coldest month for the period 1882–1901 was January with a mean of 44.7° F. The mean temperature increases monthly from January until August, which with a mean temperature of 76.2° F. is the hottest month of the year. From August onward the mean temperature decreases, the greatest change from month to month being from October to November (12° F.) and the next greatest 7.7° F. from November to December.

Precipitation.—During 41 years (1861–1901) the heaviest monthly rainfall in the year has varied between 16.5 in. in December 1888 and 3.99 in. in March 1870. The heaviest monthly fall of rain has occurred 18 times in January, 8 times in February and December, and 7 times in March. The range in the amount of rainfall for the same month in different years is extraordinary :

In January it has varied from 14.46 in. in 1897 to 0.13 in. in 1873					
„ February	„	„	12.59	„ 1882	„ 0.15 „ 1901
„ March	„	„	12.35	„ 1893	„ 0.42 „ 1865
„ April	„	„	6.54	„ 1889	„ 0.00 „ 1897
„ May	„	„	1.26	„ 1887	„ 0.00 „ 13 years
„ June	„	„	0.20	„ 1885	„ 0.00 „ 39 „
„ July no rainfall in 41 years					
„ August 0.08 in. in 1890, no rain in the other 40 years					
„ September it has varied from 0.79 in. in 1878 to 0.00 in. in 36 years					
„ October	„	„	2.28	„ 1878	„ 0.00 „ 15 „
„ November	„	„	7.99	„ 1888	„ 0.01 „ 1870
„ December	„	„	16.50	„ 1888	„ 0.49 „ 1876

It will be noticed that an aggregate fall of less than one inch of rain has been recorded at some time for every month in the year.

On 16 occasions in the period of 41 years the monthly rainfall exceeded 10 in. ; of these 6 were in January, 4 in February, 3 each in March and December. The heaviest fall registered in three consecutive months was 32.23 in. in the 3 months ending February 1878.

January has the largest average, 6.496 in., followed by December with 5.87 in. and February with 5 in. The average annual fall is 26.04 in., nearly the same as London, but it is concentrated in half the year and is subject to greater yearly fluctuations which have ranged between 41.62 in. in 1897 and 13.39 in. in 1870.

The mean average yearly fall, which shows a steady increase throughout the period, is as follows: 1861–70, 21.84 in.; 1871–80, 24.61 in.; 1881–90, 27.69 in.; 1891–1901, 29.03 in. In reference to the foregoing a long succession of years of deficient rainfall ended in 1873. It will be interesting, as time goes on, to note whether these years were the lowest in a cycle or whether the climate is undergoing a great secular change.

The mean number of raindays in the year is 56; of these January has 12, February and December have each 10, March 9, November 6, April 5, and May and October 2 each. These numbers, as the following table indicates, fluctuate considerably from year to year:

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.—Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>
Minimum	3	1	2	0	0	1	2	36
Maximum	19	18	20	13	5	13	17	72

By taking the mean of the first half of the period (1861–81) we get an average of 52 rain days for the year; for the second half (1882–1901) an average of 59, showing an increase of rain days in the latter as well as of rainfall.

Thunderstorms are infrequent: on the average there are 7.4 days, occurring mostly in the late autumn and spring.

Snow.—Jerusalem has an average of 2·9 days of snow, of which January averages 1·4 and December 0·70.

Relative Humidity.—The following means of relative humidity, showing the small percentage at 2 p.m., especially in summer, are interesting :

	7 hr.	14 hr.	21 hr.
	%	%	%
Winter	79	51	77
May-July	59	33	65
Year	70	45	71

Cloud.—Cloud, measured from 0–10, is five times greater in intensity in winter than in summer : thus in winter the mean cloud is 5·0 ; spring, 4·0 ; summer, 1·0 ; autumn, 2·5 ; and the yearly mean, 3·1. The cloudiness in summer is less at Jerusalem than on the coast and greater than in the Jordan valley.

Wind.—There are few reliable observations of the strength of winds owing to want of proper instruments. In the winter easterly and westerly winds predominate, with about 25 per cent. of calm days. In May the easterly wind begins to die down and the north-west wind increases in intensity, with the result that, until the end of September, the winds are practically west and north-west with about 20 per cent. of calm days. In October the north-west winds begin to die down, the east wind gains strength, and winter conditions set in with the start of the rainy season.

*Southern Coastal Stations (Haifa, Jaffa, Sarona,
and Gaza)*

Temperature.—Temperature on this portion of the coast is rather lower than at Beirut and higher than at Jerusalem, but notwithstanding this fact the heat is more bearable in summer owing to the westerly sea-breezes which start between 9 hr. and 10 hr., but do not reach Jerusalem till the afternoon and frequently not at all. These breezes diminish at sunset, but soon start again and blow through most of the night depositing copious dew in summer. It may thus happen that it is comparatively cool at Jaffa while the heat on the inland

plateau is extreme. The temperature on the coast hardly ever falls below freezing-point; only isolated cases of frost have been observed during a series of many years.

Precipitation.—Proceeding southward along the coast both the amount of rainfall and rain days steadily diminish as the following table shows:

Station	Beirut.	Haifa.	Jaffa and Sarona.	Gaza.	El-'Arish.
Latitude	33°54'	32°48'	32°3'	31°30'	31°7'
Mean annual rainfall	35·7 in.	27 in.	23 in.	16·5 in.	4·2 in.
No. of rain days	82	61·6	59·0	40·6	20·9

Thunderstorms, varying in number from 7 to 10 per annum, occur during the late autumn and early spring rains.

Cloud.—The cloudiness in winter and autumn is about the same on the coast as at Jerusalem, but the summer months are cloudier on the coast than inland. *Relative humidity* follows more or less the same variation; it is notably greater on the coast during mid-day.

Winds.—In spring, summer, and autumn westerly winds are most prevalent. In winter the more northerly part of the coast has easterly, and the southern, westerly winds: thus, at Haifa, the mean number of easterly winds is nearly four times as great as at Gaza. This is due to the winter distribution of pressure which has already been explained. Southerly and south-east winds are rare at Haifa, but at Gaza south-west winds are exceptionally frequent in winter, and at El-'Arish throughout the year. Wind force is less than in other parts of Syria; on an average it reaches *gale* strength at Gaza on about 8 days in the year.

Jordan Valley

The stations which supply data in this region are:

	Latitude.	Longitude.	Height below sea level.
'Ain et-Tābghah	32°52' N.	35°32' E.	—682 ft.
Tiberias	32°48' N.	35°34' E.	—653 ft.
Melhamīyeh	32°39' N.	35°33' E.	—770 ft.
Jericho	31°52' N.	35°27' E.	—879 ft.
Qasr Hajleh	31°50' N.	35°30' E.	—984 ft.

Apart, perhaps, from Tiberias and Melhamiyeh the data available are somewhat intermittent, and too much reliance cannot be placed on the records furnished by 'Ain et-Tābghah, Jericho, and Qasr Hajleh. It would, indeed, be as well to consult the 'Key to References and Periods' when regarding the climatological information of the Jordan valley, as the periods available are, in some instances, too short to give satisfactory normals.

Air Pressure.—The air pressure, owing to the depression of the country below sea-level, is abnormally high, the mean for Tiberias being 30·6 in. (Greenwich, M.S.L., 29·96 in.). Only isolated observations at Jericho are available, and these show that the air pressure there lies between 30·32 in. and 31·49 in. The pressure is higher in the morning than in the afternoon and highest in winter, especially in January.

On the shores of the Dead Sea, the mercury barometer is useless, the mercury being inoperative (except on rare occasions). At a depression of 1,284 ft., aneroid observations gave a mean of 31·47 in.

Temperature.—To understand the difference of temperature between the highland plateau and the Jordan valley the following table compares the mean temperatures in degrees F. at Tiberias and Jerusalem :

					<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>	
Tiberias .	.	.	.	.	55·8	58·4	62·5	69·2	77·3	83·5	
Jerusalem	.	.	.	.	45·5	47·8	52·6	59·0	67·1	70·9	
					<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>
Tiberias.	87·3	87·8	84·1	79·6	69·5	60·9	73·3
Jerusalem	73·2	73·9	70·9	67·5	58·7	49·6	61·2

It will be noted that all through the year the temperature in the Jordan valley is from 10–14 degrees higher than on the plateau, the difference in the yearly mean being 12·1° F.

The maximum temperatures recorded are very high at Tiberias and Jericho, viz. 114° F. and 110·3° F. respectively in June; at Melhamiyeh 107·6° F. in May. The minimum temperatures, all recorded in January, at Tiberias, Jericho, and Melhamiyeh are 34° F., 46·4° F., and 33·4° F. respectively.

Variations in temperature are greatest in April and May, the extremes amounting to as much as 45° F. to 59° F.

Three daily observations are available for a short period at Jericho from which approximate daily variations can be estimated. From these it is found that the evening temperatures are lower than the morning in summer, while in the other seasons the mornings are cooler. At noon there is an average increase of about 15° F. above the morning; this varies slightly from month to month, but is about the same both in winter and in summer.

It is difficult to obtain reliable shade temperatures on the shores of the Dead Sea, owing to the absence of shelter; the high temperatures registered must therefore be accepted with reserve. Lynch records an April temperature of 106° and compares the air to that of an oven.

Records of the temperature of the water in the Dead Sea are only available for the period from November to May, and they vary from 61° to 91·4° F.

Precipitation.—The yearly precipitation in the Jordan valley is considerably below the mean of Syria. The total fall averages 20·2 in. and 17·3 in. at Tiberias and Melhamīyeh respectively, as compared with 26 in. at Jerusalem. The number of rain days is from two to three less at Tiberias than at Jerusalem. December and January, here as elsewhere, have the heaviest rainfall.

Evaporation is intense in the lower Jordan valley; observations at Jericho are said to show that it is ten to thirteen times as great as on the coast and about four times as great as at Jerusalem. In specially dry weather it is said to amount to 0·79–0·98 in. per day.

Cloud.—Cloud is less prevalent at Melhamīyeh and much less at Jericho than on the coast, the mean for January being 3·7 and 2·4 respectively as compared with 4·6 on the coast as a whole and 5·6 at Beirut. Similar conditions obtain throughout the year, the figures for July being Melhamīyeh 0·4, Jericho 0·01, coast 1·1, and Beirut 1·5; this shows that the lower Jordan valley, due to the small rainfall and intense evaporation, is practically cloudless in midsummer.

During south winds and calms, *mists* frequently roll up the valley from the Dead Sea which the sun disperses in the afternoon.

Wind.—The wind observations in the Jordan valley are very scanty. As far as may be judged at Melhamīyeh west winds predominate throughout the spring and summer, attaining a maximum of frequency in July and changing to north-west in August. In winter and spring north winds are fairly common, and windless days, especially in winter, are frequent all through the year. The average wind force at noon is much greater than during the morning and evening. The morning and evening forces are about equal. In summer the noon wind force is on the average three to four times greater than in the morning and evening. As in other parts of the country, the maximum wind force observed is from 5–7 (Beaufort scale). At Jerichō conditions are somewhat different. While the average noon wind force is much greater than the morning, the evening wind is on the average 50 per cent. greater, thus increasing the means of the three observations and making the average wind force at Jericho greater than at Melhamīyeh. Calms are also fewer, north and south winds more prevalent, south-west rare, and the west winds change to north-west in the spring instead of in autumn as at Melhamīyeh. On the Dead Sea in the winter months, as already noted, sudden and violent gusts and storms prevail till the end of April when calmer weather accompanied by intense heat sets in. In the calmer weather, from 9 hr. to 15 hr., it is generally windless or a slight south wind may blow which after that time to sunset changes to a north wind. Easterly and westerly winds are rare.

Nekhl

Lat. 29° 54' N., long. 33° 45' E., alt. 1,300 ft.

This station is not in Syria but on the plateau of North Sinai sufficiently near the frontier to give an idea of the climate of the southern region in the absence of a station in Syria proper.

Temperature.—The main characteristic of this region is the

mild winter and the hot summer, the latter lasting from May to September. At Nekhl, owing to its high situation, the range of temperature is very great, varying between a recorded absolute maximum of 108° F. to an absolute minimum of 18° F. The range of temperature is accentuated by the high nocturnal radiation which not infrequently causes sharp frosts to occur here. The mean summer temperature is about the same as that of Alexandria, the mean winter temperature about 10° F. below it ; the mean maximum temperatures, both daily and monthly, are greater by $4-6^{\circ}$ F. in spring, summer, and autumn than at Alexandria. The mean daily minimum temperature in January is only just above freezing-point (32.7° F.) compared with 50.4° F. at Alexandria, and 59.9° F. in July compared with 72.9° F. at Alexandria, showing, as might have been expected, that the nights are much colder. The mean monthly range of temperature is greatest in April (59° F.) and least in August (46° F.), while the corresponding ranges at Alexandria are 42.5° F. and 18.7° F. respectively. This likewise shows that on the whole it is hotter by day and colder at night at this station than in the lower-lying parts.

Precipitation.—The rainfall at Nekhl is extremely small, the mean precipitation of the wettest month (January) being only 0.3 in., and the average annual rainfall only 1.2 in., the months from June to November being practically rainless. The mean number of rain days recorded is 7.6, which shows a small density of precipitation of about one-third to one-quarter of the density at Jerusalem.

No data as regards *Relative Humidity* or *Evaporation* are available ; this is unfortunate as the comparisons which would have been possible between the climatic conditions of the hot high tableland of Sinai and those of the torrid depression of the Ghōr, the latter locality being as much below the sea-level as the first is above, would have proved interesting.

Winds.—As regards winds only one observation per diem has been made for the 5 years available, so that the results given in the table can be accepted merely as generalizations. It appears, however, that right through the year west winds

prevail—in the winter, on two days out of three, while in the other seasons on every other day the wind is westerly. The next most prevalent wind is south-west and between them they cover about 90 per cent. of the days in winter and 70 per cent. in the summer : north, north-east, and north-west winds make up the remainder. Southerly winds are almost unknown, and calm days extremely rare.

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TABLE I. MEAN TEMPERATURE

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June</i> ° F.
Coast :						
Adana . . .	46·3	49·0	55·8	64·1	71·2	79·0
Beirut . . .	55·6	56·5	59·9	64·8	70·3	76·1
Haifa . . .	54·0	57·6	60·4	65·8	70·5	75·9
Sarona . . .	52·9	54·7	58·1	63·1	69·6	72·9
Jaffa . . .	55·3	56·9	59·8	64·6	70·2	74·0
Gaza . . .	53·1	55·9	59·7	64·9	70·7	74·7
El-'Arish . .	52·3	54·5	58·1	63·5	69·6	73·8
Inland :						
El-Qareya . .	41·2	45·5	47·7	56·0	64·5	68·2
Qsāra . . .	39·6	42·5	48·2	57·8	62·8	70·3
Damascus . .	43·5	46·2	53·8	56·8	68·5	78·8
Nazareth . .	49·3	53·5	55·7	62·8	68·1	73·8
El-Lātrūn . .	54·4	57·2	59·6	67·1	73·5	77·2
Jerusalem . .	45·5	47·8	52·6	59·0	67·1	70·9
Hebron . . .	44·7	47·6	51·1	58·4	65·6	69·1
Nekhl . . .	47·3	50·9	55·9	63·9	72·0	74·7
Jordan Valley :						
'Ain et-Tābghah .	56·3	59·0	62·4	71·6	78·8	85·3
Tiberias . . .	55·8	58·4	62·5	69·2	77·3	83·5
Melhamīyeh . .	54·7	58·3	61·9	68·7	77·9	83·1
Jericho . . .	54·1	—	60·3	64·9	74·8	82·0
Qasr Hajleh . .	67·3	68·5	71·8	77·4	87·0	92·5

TABLE II. MEAN DAILY MINIMUM TEMPERATURE

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
Coast :						
Adana . . .	38·7	41·7	46·8	54·1	60·4	67·8
Beirut . . .	49·0	50·0	53·0	58·0	63·0	69·0
Sarona . . .	45·9	46·4	49·0	52·8	57·3	62·7
Jaffa . . .	46·8	47·8	50·1	54·3	59·9	64·1
El-'Arish . .	43·9	45·3	48·7	53·2	57·4	61·9
Inland :						
El-Qareya . .	37·4	40·6	42·3	48·9	56·8	59·9
Qsā : . . .	30·7	34·0	38·8	46·3	50·5	56·1
Damascus . .	36·5	36·3	41·5	45·5	55·0	—
Nazareth . .	41·4	43·3	46·2	51·6	57·0	61·7
El-Lātrūn . .	46·4	47·8	49·3	54·7	59·4	63·0
Jerusalem . .	38·7	41·2	44·6	51·1	56·8	61·3
Hebron . . .	36·6	38·5	40·8	45·9	51·2	54·7
Nekhl . . .	32·7	35·8	40·1	46·9	53·6	56·5
Jordan Valley :						
Tiberias . . .	47·2	49·3	52·4	57·8	64·6	70·0
Qasr Hajleh . .	48·4	49·1	54·9	60·1	66·7	74·3

<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.	<i>Year.</i> ° F.	
81·9	77·4	73·6	71·0	59·0	51·0	62·3	Coast :
80·4	81·5	79·3	75·0	66·6	60·1	68·8	Adana.
79·9	81·5	79·9	75·0	64·6	58·3	68·5	Beirut.
77·4	78·6	76·5	71·8	63·7	57·0	66·4	Haifa.
77·6	79·2	77·2	72·0	64·6	58·6	67·5	Sarona.
79·0	79·7	77·0	73·4	64·8	57·4	67·5	Jaffa.
76·9	78·4	75·8	71·8	63·0	55·8	66·6	Gaza.
							El-'Arish.
							Inland :
71·4	72·0	67·5	62·8	53·5	46·1	58·0	El-Qareya.
73·0	75·4	70·9	64·1	55·4	45·7	58·8	Qsāra.
83·3	77·2	71·1	66·2	55·8	46·4	61·6	Damascus.
77·9	78·6	77·1	75·0	64·7	53·8	65·8	Nazareth.
80·4	81·7	79·1	75·4	67·2	59·2	69·3	El-Lātrūn.
73·2	73·9	70·9	67·5	58·7	49·6	61·2	Jerusalem.
71·6	73·0	70·9	66·9	56·8	49·3	60·4	Hebron.
76·8	77·5	74·1	69·1	58·8	49·5	64·2	Nekhl.
							Jordan Valley :
89·1	88·5	86·2	79·9	71·5	62·6	74·2	'Ain et-Tābghah.
87·3	87·8	84·1	79·6	69·5	60·9	73·3	Tiberias.
86·7	(88·5)	(84·4)	78·3	66·6	59·2	(72·3)	Melhamiyeh.
85·1	88·9	86·9	—	—	—	—	Jericho.
94·5	92·8	90·8	88·7	84·2	72·8	82·4	Qasr Hajleh.

<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.	<i>Year.</i> ° F.	
72·3	63·1	59·5	60·6	50·4	43·3	50·5	Coast :
72·0	74·0	72·0	68·0	60·0	54·0	62·0	Adana.
67·2	69·4	66·3	62·5	54·4	49·0	56·9	Beirut.
68·1	69·3	67·3	61·5	55·0	49·5	57·8	Sarona.
66·9	68·2	66·0	61·9	53·4	46·9	56·7	Jaffa.
							El-'Arish.
							Inland :
63·5	64·4	61·0	56·3	48·9	42·3	51·8	El-Qareya.
58·6	60·6	55·6	51·1	43·3	36·7	46·9	Qsāra.
64·7	59·8	56·1	50·8	44·4	40·6		Damascus.
66·6	67·5	65·1	62·2	53·1	45·7	55·0	Nazareth.
66·4	67·9	66·0	63·0	57·0	51·0	57·6	El-Lātrūn.
64·6	64·6	61·9	59·5	50·2	43·3	53·1	Jerusalem.
57·1	58·7	56·5	53·6	46·2	40·4	48·2	Hebron.
59·9	60·6	58·3	54·0	42·6	33·4	47·9	Nekhl.
							Jordan Valley :
74·4	75·5	72·2	68·6	60·2	52·7	62·7	Tiberias.
77·0	77·0	74·3	70·9	65·5	53·1	64·3	Qasr Hajleh.

TABLE III. MEAN DAILY MAXIMUM TEMPERATURE

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
Coast :						
Adana . . .	54.0	56.3	64.9	74.1	82.0	90.1
Beirut . . .	62.0	64.0	67.0	72.0	78.0	83.0
Sarona . . .	63.2	63.9	69.8	74.9	79.1	83.3
Jaffa . . .	63.9	66.0	69.6	74.8	80.4	83.8
El-'Arish . . .	63.7	66.9	70.0	75.6	80.2	83.5
Inland :						
El-Qareya . . .	45.0	50.3	53.1	63.1	72.1	76.6
Qsāra . . .	48.6	51.1	57.7	69.3	75.2	84.6
Damascus . . .	50.2	54.5	63.1	70.5	80.8	—
Nazareth . . .	57.2	61.7	65.3	74.1	79.2	85.8
El-Lātrūn . . .	62.4	66.6	70.0	79.5	87.6	91.3
Jerusalem . . .	50.7	54.9	61.9	70.5	78.4	83.8
Hebron . . .	51.9	56.4	60.7	70.6	79.6	83.5
Nekhl . . .	60.1	65.8	71.8	80.8	90.1	92.8
Jordan Valley:						
Tiberias . . .	64.5	67.5	72.6	80.7	90.1	97.0
Qasr Hajleh . . .	86.2	88.0	88.7	94.8	107.4	110.7

TABLE IV. MEAN MONTHLY MINIMUM TEMPERATURE

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
Coast :						
Adana . . .	27.0	32.4	38.1	46.4	53.4	60.4
Beirut . . .	41.0	42.6	43.9	49.8	55.6	63.0
Haifa . . .	39.9	42.4	45.5	50.9	55.9	64.9
Sarona . . .	39.2	41.8	41.4	46.0	51.1	58.3
Jaffa . . .	37.1	41.1	43.0	45.3	51.6	58.3
Gaza . . .	42.6	45.7	48.2	54.3	61.0	66.7
El-'Arish . . .	35.2	39.2	42.1	45.5	51.3	55.2
Inland :						
El-Qareya . . .	27.1	33.6	33.8	38.5	46.2	52.0
Qsāra . . .	(13.8)	26.2	30.7	35.3	40.8	48.0
Nazareth . . .	33.3	36.1	38.3	43.2	49.1	55.2
El-Lātrūn . . .	35.6	41.8	43.0	45.9	52.3	58.5
Jerusalem . . .	31.5	33.4	34.3	40.5	46.0	52.7
Hebron . . .	28.4	31.4	31.4	34.2	39.6	46.0
Nekhl . . .	23.2	27.9	28.2	36.9	45.1	50.4
Jordan Valley:						
'Ain et-Tābghah . . .	44.8	48.9	51.1	59.0	65.5	74.7
Tiberias . . .	38.9	43.0	43.6	50.1	56.2	64.1
Melhamīyeh . . .	39.2	46.0	49.3	52.5	62.8	70.2

<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.	<i>Year.</i> ° F.	
91·4	91·8	87·6	81·3	67·3	58·6	74·1	Coast :
88·0	89·0	86·0	82·0	73·0	66·0	76·0	Adana.
86·1	88·0	87·1	85·0	74·6	67·5	76·9	Beirut.
87·1	89·1	87·1	82·6	74·3	67·8	77·2	Sarona.
85·8	86·5	84·0	80·8	75·4	67·6	77·0	Jaffa.
							El-'Arish.
							Inland :
79·3	79·5	74·7	69·3	58·1	50·0	64·2	El-Qareya.
87·4	90·3	86·2	77·0	67·6	54·7	70·8	Qsāra.
95·0	84·1	77·4	71·1	—	—		Damascus.
89·2	89·8	89·1	87·8	76·3	61·9	76·6	Nazareth.
94·5	95·4	92·2	87·8	77·4	67·5	81·0	El-Lātrūn.
86·5	87·6	84·9	79·9	65·5	56·3	71·8	Jerusalem.
85·9	87·4	84·8	79·8	66·6	57·2	72·0	Hebron.
93·9	94·5	90·0	84·2	75·2	66·2	80·4	Nekhl.
							Jordan Valley :
100·3	100·2	96·1	90·6	78·8	69·2	84·0	Tiberias.
112·1	108·7	107·4	106·5	102·9	92·5	100·5	Qasr Hajleh.

<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.	
67·5	68·5	63·0	53·6	39·9	35·4	Coast :
68·5	70·0	67·1	60·6	52·2	43·3	Adana.
70·7	71·7	67·2	58·8	50·9	43·5	Beirut.
63·8	66·5	61·5	56·4	49·7	42·5	Haifa.
62·4	65·3	61·7	55·0	45·9	41·9	Sarona.
72·0	73·2	67·1	61·0	51·6	45·7	Jaffa.
60·4	63·7	60·1	56·1	44·1	38·7	Gaza.
						El-'Arish.
						Inland :
57·9	59·4	54·9	48·9	39·9	33·1	El-Qareya.
52·2	53·1	48·4	42·4	36·0	25·3	Qsāra.
62·2	63·9	57·4	54·5	45·3	36·0	Nazareth.
62·8	64·9	62·2	57·2	49·3	42·3	El-Lātrūn.
58·3	59·2	55·9	50·9	41·5	33·6	Jerusalem.
49·8	50·6	47·7	44·5	37·3	31·8	Hebron.
54·9	54·9	49·3	44·1	33·1	24·8	Nekhl.
						Jordan Valley :
81·9	83·3	78·6	68·9	58·1	53·4	'Ain et-Tābghah.
70·1	71·7	65·8	62·3	52·8	44·1	Tiberias.
78·1	—	—	65·3	54·3	44·1	Melhamiyeh.

TABLE V. MEAN MONTHLY MAXIMUM TEMPERATURE

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
Coast :						
Adana . . .	64.2	65.3	74.1	85.5	94.3	101.1
Beirut . . .	70.0	72.5	81.7	86.4	89.8	90.9
Haifa . . .	67.8	76.1	85.2	95.1	96.0	94.2
Sarona . . .	71.0	75.7	88.3	94.2	93.6	91.9
Jaffa . . .	76.3	80.1	86.9	94.5	94.3	88.4
Gaza . . .	66.9	73.0	85.8	92.1	93.0	86.7
El-'Arish . .	76.5	84.4	88.7	100.8	99.3	94.1
Inland :						
El-Qareya . .	57.0	62.8	66.9	83.3	86.2	86.2
Qsāra . . .	64.4	66.9	69.3	82.0	91.9	94.6
Nazareth . .	68.4	73.0	82.4	91.9	97.7	99.1
El-Lātrūn . .	77.9	81.5	85.7	99.9	105.8	103.5
Jerusalem . .	59.9	67.3	79.5	85.3	92.1	97.5
Hebron . . .	68.0	69.5	75.8	88.8	95.0	96.7
Nekhl . . .	76.5	80.2	84.6	95.9	102.9	103.8
Jordan Valley:						
'Ain et-Tābghah .	67.8	72.9	77.9	89.4	98.6	99.0
Tiberias . . .	73.1	77.2	88.4	95.8	103.4	108.0
Melhamiyeh . .	72.3	71.1	81.3	94.1	103.5	104.0

TABLE VI. MONTHLY RANGE OF TEMPERATURE (MEAN

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
Coast :						
Adana . . .	37.2	32.9	36.0	39.1	40.9	40.7
Beirut . . .	29.0	29.9	37.8	36.6	34.2	27.9
Haifa . . .	27.9	33.7	39.7	44.2	40.1	29.3
Sarona . . .	31.8	33.9	46.9	48.2	42.5	33.6
Jaffa . . .	39.2	39.0	43.9	49.2	42.7	30.1
Gaza . . .	24.3	27.3	37.6	37.8	32.0	20.0
El-'Arish . .	41.3	45.2	46.6	55.3	48.0	38.9
Inland :						
El-Qareya . .	29.9	29.2	33.1	44.8	40.2	34.2
Qsāra . . .	50.6	40.7	38.6	46.7	51.1	46.6
Nazareth . .	35.1	36.9	44.1	48.7	48.6	43.9
El-Lātrūn . .	42.3	39.7	42.7	54.0	53.5	45.0
Jerusalem . .	28.4	33.9	45.2	45.0	46.1	44.8
Hebron . . .	39.6	38.1	44.4	54.6	55.4	50.7
Nekhl . . .	53.3	56.3	56.4	59.0	57.8	53.4
Jordan Valley:						
'Ain et-Tābghah .	23.0	24.0	26.8	30.4	33.1	24.3
Tiberias . . .	34.2	34.2	44.8	45.7	47.2	43.9
Melhamiyeh . .	33.1	25.1	32.0	41.6	40.7	33.8

<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.	
97.0	99.3	95.9	90.1	78.1	67.3	Coast :
91.4	92.3	90.9	90.3	82.2	74.8	Adana.
92.4	93.3	92.8	96.6	85.8	72.6	Bcirut.
88.4	90.3	90.3	94.4	87.7	77.6	Haifa.
91.4	91.2	90.0	91.8	83.3	77.2	Sarona.
87.6	88.0	85.5	88.0	84.6	74.1	Jaffa.
94.8	92.1	89.6	89.2	87.1	76.3	Gaza.
						El-'Arish.
						Inland :
86.0	87.3	83.8	80.1	70.5	59.5	El-Qareya.
97.7	101.1	96.6	90.7	79.9	65.3	Qsāra.
97.3	94.8	100.0	99.1	88.2	77.0	Nazareth.
102.0	101.6	99.7	98.4	92.5	79.7	El-Lātrūn.
96.3	97.0	96.3	89.8	77.7	67.5	Jerusalem.
94.4	95.8	94.2	90.8	80.1	70.6	Hebron.
102.2	100.9	98.8	91.9	85.1	75.6	Nekhl.
						Jordan Valley:
100.9	101.3	97.5	93.0	87.6	74.3	'Ain et-Tābghah.
107.5	106.5	105.9	101.0	92.4	81.5	Tiberias.
104.7	—	—	99.5	84.2	77.5	Melhamiyeh.

MONTHLY MAXIMUM LESS MEAN MONTHLY MINIMUM)

<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.	
29.5	30.8	32.9	36.5	38.2	31.9	Coast :
22.9	22.3	23.8	29.7	30.0	31.5	Adana.
21.7	21.6	25.6	37.8	34.9	29.1	Beirut.
24.6	23.8	28.8	38.0	38.0	35.1	Haifa.
29.0	25.9	28.3	36.8	39.2	35.3	Sarona.
15.6	14.8	18.4	27.0	33.0	28.4	Jaffa.
34.4	28.4	29.5	33.1	43.0	37.6	Gaza.
						El-'Arish.
						Inland :
28.1	27.9	28.9	31.2	30.6	26.4	El-Qareya.
45.5	48.0	48.2	48.3	43.9	40.0	Qsāra.
35.1	30.9	42.6	44.6	42.9	41.0	Nazareth.
39.2	36.7	37.5	41.2	43.2	37.4	El-Lātrūn.
38.0	37.8	40.4	38.9	36.2	33.9	Jerusalem.
44.6	45.2	46.5	46.3	42.8	38.8	Hebron.
47.3	46.0	49.5	47.8	52.0	50.8	Nekhl.
						Jordan Valley:
19.0	18.0	18.9	24.1	29.5	20.9	'Ain et-Tābghah
37.4	34.8	40.1	38.7	39.6	37.4	Tiberias.
26.6	—	—	34.2	29.9	33.4	Melhamiyeh.

TABLE VII. ABSOLUTE MINIMUM TEMPERATURE

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
Coast :						
Adana	19·4	23·5	32·2	39·9	52·2	57·4
Beirut	35·1	35·8	35·8	43·0	49·8	55·9
Haifa	29·1	—	—	—	—	—
Sarona	32·0	32·0	34·0	40·0	45·0	51·0
Jaffa	32·4	38·8	39·2	43·7	48·2	56·8
Gaza	39·2	—	—	—	—	—
El-'Arish	29·3	35·6	40·1	41·0	48·2	50·0
Inland :						
El-Qareya	21·2	28·4	25·9	32·2	40·1	44·6
Qsāra	0·7	19·2	28·8	34·9	38·1	46·8
Damascus	27·5	26·0	26·6	32·0	48·2	—
Nazareth	28·0	31·3	35·1	39·9	45·9	50·4
El-Lātrūn	26·6	37·4	39·6	42·8	48·6	56·5
Jerusalem	25·0	28·0	28·5	30·0	38·5	47·8
Hebron	18·9	26·0	25·3	31·0	34·2	45·3
Nekhl	19·9	25·7	21·9	34·0	41·7	45·7
Jordan Valley :						
'Ain et-Tābghah	39·2	45·5	46·4	52·7	63·5	73·4
Tiberias	34·0	37·0	40·0	43·0	50·0	59·0
Melhamiyeh	33·4	42·8	46·4	48·2	58·1	69·4
Jericho	46·4	52·7	—	55·4	66·2	77·9
Qasr Hajleh	45·5	41·0	44·6	50·0	59·0	69·8

TABLE VIII. ABSOLUTE MAXIMUM TEMPERATURE

	<i>Jan.</i> ° F.	<i>Feb.</i> ° F.	<i>Mar.</i> ° F.	<i>April.</i> ° F.	<i>May.</i> ° F.	<i>June.</i> ° F.
Coast :						
Adana	69·8	71·4	84·9	87·8	99·9	104·4
Beirut	79·0	83·0	97·0	97·2	102·0	99·5
Haifa	—	—	—	—	104·0	—
Sarona	80·0	82·0	98·0	102·0	103·0	112·0
Jaffa	85·8	86·9	93·4	97·5	101·8	91·4
Gaza	—	—	—	—	104·0	—
El-'Arish	86·0	88·7	95·9	109·4	106·7	98·6
Inland :						
El-Qareya	63·0	76·1	85·5	86·5	95·4	92·8
Qsāra	69·3	73·0	70·9	86·0	93·6	96·4
Damascus	57·2	65·3	80·6	86·0	89·6	—
Nazareth	74·7	79·3	92·5	95·7	105·3	110·5
El-Lātrūn	84·9	91·4	91·0	104·4	109·4	111·6
Jerusalem	74·8	79·0	90·5	94·8	103·0	108·0
Hebron	76·0	77·9	84·0	91·4	101·0	103·1
Nekhl	86·0	84·0	91·9	100·0	106·0	107·1
Jordan Valley :						
'Ain et-Tābghah	71·6	75·2	84·2	93·2	100·4	103·1
Tiberias	78·0	82·0	97·0	101·0	109·0	114·0
Melhamiyeh	75·2	75·6	86·0	96·1	107·6	106·7
Jericho	73·4	74·3	—	100·4	106·7	110·3
Qasr Hajleh	89·6	95·0	100·0	109·4	112·1	111·2

<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.	
66·6	65·8	60·8	50·9	32·2	32·7	Coast :
63·9	62·1	60·4	52·0	41·4	30·0	Adana.
—	—	—	—	—	32·0	Beirut.
60·0	63·0	57·0	51·0	40·0	37·0	Haifa.
59·2	63·3	59·9	53·4	39·7	37·9	Sarona.
—	—	—	—	—	—	Jaffa.
56·3	59·9	57·2	53·6	34·7	35·6	Gaza.
						El-'Arish.
53·6	56·5	50·9	44·8	27·1	24·8	Inland :
51·1	50·2	48·4	41·4	32·4	21·9	El-Qareya.
59·0	58·0	48·0	48·0	41·0	34·0	Qsāra.
59·2	62·8	54·1	50·0	35·2	25·3	Damascus.
60·8	62·2	60·4	51·4	42·1	36·3	Nazareth.
49·0	52·5	42·0	32·0	34·0	27·5	El-Lātrūn.
45·0	48·1	45·2	42·2	32·0	27·0	Jerusalem.
51·1	53·6	45·0	39·9	23·0	18·0	Hebron.
						Nekhl.
80·6	82·4	77·9	66·2	53·6	50·0	Jordan Valley:
67·0	67·0	50·0	57·0	48·0	39·0	'Ain et-Tābghah.
77·0	81·5	—	64·4	49·5	39·2	Tiberias.
80·6	—	—	—	—	—	Melhamiyeh.
73·4	74·3	70·7	68·0	54·5	48·2	Jericho.
						Qasr Hajleh.

<i>July.</i> ° F.	<i>Aug.</i> ° F.	<i>Sept.</i> ° F.	<i>Oct.</i> ° F.	<i>Nov.</i> ° F.	<i>Dec.</i> ° F.	
100·9	102·2	97·7	92·3	82·0	70·5	Coast :
98·1	99·3	99·1	101·3	94·0	83·7	Adana.
—	—	—	104·0	—	—	Beirut.
96·0	106·0	102·0	105·0	96·0	82·0	Haifa.
96·8	93·2	91·4	95·5	87·8	83·5	Sarona.
—	—	—	—	—	—	Jaffa.
103·1	95·0	95·9	99·5	91·8	83·3	Gaza.
						El-'Arish.
89·1	95·2	97·0	86·0	79·0	66·7	Inland :
99·5	106·2	99·0	92·7	82·6	66·2	El-Qareya.
99·5	89·0	85·0	76·0	—	—	Qsāra.
100·0	99·9	110·1	107·8	97·9	84·6	Damascus.
113·7	108·7	108·7	106·5	99·0	86·7	Nazareth.
106·0	103·0	101·0	96·5	89·2	73·6	El-Lātrūn.
102·3	103·1	101·6	98·2	84·9	76·9	Jerusalem.
108·0	105·1	105·1	98·1	88·0	80·1	Hebron.
						Nekhl.
104·0	104·0	102·2	99·5	91·4	77·0	Jordan Valley:
111·0	112·0	111·0	104·0	100·0	88·0	'Ain et-Tābghah.
107·2	105·1	—	102·2	91·4	80·6	Tiberias.
104·0	—	—	—	—	—	Melhamiyeh.
113·0	113·0	111·2	113·0	107·6	106·7	Jericho.
						Qasr Hajleh.

TABLE IX. MEAN MONTHLY RAINFALL

	<i>Jan.</i> ins.	<i>Feb.</i> ins.	<i>Mar.</i> ins.	<i>April.</i> ins.	<i>May.</i> ins.	<i>June.</i> ins.
Coast :						
Adana	4.1	4.8	3.5	1.7	2.1	0.9
Beirut	7.32	6.34	3.9	2.09	0.59	0.22
Haifa	7.01	3.70	2.40	1.18	0.32	0.03
Sarona	6.61	3.27	1.46	0.67	0.23	0.03
Jaffa	5.61	3.88	2.69	0.89	0.10	0.03
Gaza	4.33	1.97	1.46	0.28	0.32	0.04
El-'Arish	1.15	0.72	0.72	0.48	0.13	0.0
Inland :						
'Aintāb	3.23	3.54	2.76	2.36	1.30	0.24
El-Qareya	12.8	10.9	9.17	4.02	1.93	0.11
Qsāra	6.48	5.49	3.80	4.37	0.53	0.0
Damascus	2.09	2.68	1.22	0.63	—	—
Nazareth	6.34	4.57	3.70	1.02	0.24	0.0
El-Lātrūn	6.46	3.30	2.81	1.34	0.28	0.02
Jerusalem	6.50	5.00	4.09	1.58	0.24	0.0
Hebron	6.17	4.57	3.42	2.01	0.28	0.07
Nekhl	0.30	0.22	0.26	0.24	0.05	0.0
Jordan Valley:						
'Ain et-Tābghah	3.9	3.07	2.76	1.10	0.33	0.008
Tiberias	4.69	3.21	2.61	1.09	0.15	0.0
Melhamīyeh	3.82	3.98	2.79	0.71	0.16	0.0
Qasr-Hajleh	1.00	2.00	0.0	1.10	0.50	—

TABLE X. MAXIMUM RAINFALL IN MONTH AND YEAR

	<i>Jan.</i> ins.	<i>Feb.</i> ins.	<i>Mar.</i> ins.	<i>April.</i> ins.	<i>May.</i> ins.	<i>June.</i> ins.
Coast :						
Adana	9.04	9.05	4.97	4.17	4.45	2.36
Beirut	15.0	15.8	8.5	6.26	2.56	2.72
Haifa	12.1	10.5	5.95	3.50	2.05	0.55
Sarona	11.32	7.22	2.55	4.17	0.95	0.56
Jaffa	8.6	5.9	7.6	1.95	0.55	0.16
El-'Arish	1.8	1.9	2.1	1.8	0.5	0.0
Inland :						
El-Qareya	16.2	19.8	19.8	10.7	5.87	0.63
Qsāra	7.17	6.02	4.82	5.20	0.82	0.0
Nazareth	14.2	10.3	5.91	2.76	0.98	0.0
El-Lātrūn	8.94	7.72	6.85	4.02	1.61	0.16
Jerusalem	14.5	12.6	12.4	6.54	1.26	0.20
Hebron	13.87	12.37	8.64	8.30	2.19	1.29
Nekhl	0.57	0.40	0.70	0.66	0.30	0.0
Jordan Valley:						
'Ain et-Tābghah	5.91	5.28	5.78	1.86	0.47	0.0
Tiberias	11.21	6.50	4.95	3.04	0.90	0.0

<i>July.</i> ins.	<i>Aug.</i> ins.	<i>Sept.</i> ins.	<i>Oct.</i> ins.	<i>Nov.</i> ins.	<i>Dec.</i> ins.	<i>Year.</i> ins.	
0·1	0·0	0·2	0·8	3·6	3·1	24·9	Coast :
0·024	0·024	0·32	1·89	5·24	7·64	35·7	Adana.
0·0	0·0	0·08	0·91	4·21	7·13	27·0	Beirut.
0·0	0·17	0·35	0·60	3·85	6·22	23·0	Haifa.
0·0	0·0	0·2	1·41	3·18	5·60	23·6	Sarona.
0·0	0·0	0·04	0·83	3·15	4·13	16·53	Jaffa.
0·0	0·0	0·0	0·06	0·49	0·45	4·2	Gaza.
							El-'Arīsh.
							Inland :
0·08	0·0	0·0	1·06	3·35	4·13	22·1	'Aintāb.
0·01	0·004	0·28	2·44	7·42	10·6	59·68	El-Qareya.
0·24	0·0	0·08	1·56	1·81	4·90	29·26	Qsāra.
—	—	—	—	—	4·90		Damascus.
0·0	0·0	0·0	0·75	3·39	7·09	27·10	Nazareth.
0·0	0·0	0·008	0·91	2·44	5·19	22·76	El-Lātrūn.
0·0	0·0	0·04	0·39	2·32	5·87	26·04	Jerusalem.
0·0	0·0	0·02	0·53	2·13	5·05	24·25	Hebron.
0·0	0·0	0·0	0·0	0·0	0·12	1·19	Nekhl.
							Jordan Valley:
0·001	0·001	0·08	0·831	1·89	3·15	17·12	'Ain et-Tābghah.
0·0	0·0	0·003	0·56	2·86	5·05	20·22	Tiberias.
0·0	0·0	0·0	0·16	2·09	3·62	17·33	Melhamīyeh.
—	—	—	—	—	2·68		Qasr Hajleh.

<i>July.</i> ins.	<i>Aug.</i> ins.	<i>Sept.</i> ins.	<i>Oct.</i> ins.	<i>Nov.</i> ins.	<i>Dec.</i> ins.	<i>Year.</i> ins.	
0·17	0·0	0·34	1·1	6·89	7·36	30·6	Coast :
0·39	0·28	2·40	7·36	15·3	13·6	51·4	Adana.
0·0	0·04	0·47	3·27	13·55	13·85	39·5	Beirut.
0·0	0·35	0·33	1·67	8·14	11·53	30·6	Haifa.
0·0	0·0	1·10	3·89	5·52	12·50	28·4	Sarona.
0·0	0·0	0·0	0·3	1·1	1·0	5·4	Jaffa.
							El-'Arīsh.
							Inland :
0·12	0·02	1·02	8·03	19·0	18·6	77·95	El-Qareya.
0·74	0·0	0·12	3·03	1·90	9·5	35·00	Qsāra.
0·04	0·0	0·04	2·48	9·06	12·8	37·9	Nazareth.
0·0	0·0	0·06	4·52	6·97	12·45	32·5	El-Lātrūn.
0·0	0·08	0·79	2·28	7·99	16·5	41·6	Jerusalem.
0·0	0·0	0·19	2·47	6·10	14·05	39·76	Hebron.
0·0	0·0	0·0	0·0	0·0	0·40	3·03	Nekhl.
							Jordan Valley:
0·004	0·004	0·34	1·70	3·42	5·31	—	'Ain et-Tābghah.
0·0	0·0	0·05	2·06	6·65	8·75	27·72	Tiberias.

TABLE XI. MINIMUM RAINFALL IN MONTH AND YEAR

	<i>Jan.</i> ins.	<i>Feb.</i> ins.	<i>Mar.</i> ins.	<i>April.</i> ins.	<i>May.</i> ins.	<i>June.</i> ins.
Coast :						
Adana	1.26	2.20	2.26	0.47	0.86	0.0
Beirut	1.02	1.38	1.42	0.04	0.0	0.0
Haifa	0.67	0.20	0.86	0.04	0.0	0.0
Sarona	0.47	0.66	0.28	0.07	0.0	0.0
Jaffa	3.98	1.03	0.07	0.05	0.0	0.0
El-'Arīsh	0.30	0.04	0.04	0.0	0.0	0.0
Inland :						
El-Qareya	9.13	0.79	1.46	0.32	0.0	0.0
Qsāra	5.78	4.96	2.87	3.54	0.39	0.0
Nazareth	1.22	1.73	0.04	0.0	0.0	0.0
El-Lātrūn	3.42	0.0	0.59	0.20	0.0	0.0
Jerusalem	0.12	0.16	0.43	0.0	0.0	0.0
Hebron	1.57	0.23	0.23	0.03	0.0	0.0
Nekhl	0.14	0.0	0.0	0.0	0.0	0.0
Jordan Valley:						
'Ain et-Tābghah	1.93	2.99	0.75	0.39	0.004	0.0
Tiberias	0.45	0.08	0.39	0.0	0.0	0.0

TABLE XII. MAXIMUM RAINFALL IN 24 HOURS

	<i>Jan.</i> ins.	<i>Feb.</i> ins.	<i>Mar.</i> ins.	<i>April.</i> ins.	<i>May.</i> ins.	<i>June.</i> ins.
Coast :						
Beirut	3.54	3.54	1.97	2.84	1.38	2.36
Haifa	2.80	3.07	1.22	1.69	1.49	0.0
Sarona	2.17	—	—	—	—	—
El-'Arīsh	0.55	0.62	0.83	0.71	0.22	0.0
Inland :						
El-Qareya	3.98	3.90	3.19	2.60	2.28	0.43
Qsāra (1912)	1.56	1.42	0.52	2.08	0.17	—
El-Lātrūn	4.57	2.13	1.61	1.85	0.47	0.0
Jerusalem	3.42	3.35	3.39	—	—	—
Hebron	4.30	2.92	—	—	—	—
Nekhl	0.26	0.22	0.65	0.40	0.30	0.0
Jordan Valley:						
'Ain et-Tābghah	1.69	1.42	1.38	0.71	0.47	0.0
Tiberias	2.72	1.16	2.00	1.48	0.40	0.0
Qasr Hajleh	0.40	0.79	0.0	1.10	0.50	—

<i>July.</i> ins.	<i>Aug.</i> ins.	<i>Sept.</i> ins.	<i>Oct.</i> ins.	<i>Nov.</i> ins.	<i>Dec.</i> ins.	<i>Year.</i> ins.	
0.0	0.0	0.18	0.63	0.71	1.34	23.55	Coast :
0.0	0.0	0.0	0.0	0.0	0.24	23.3	Adana.
0.0	0.0	0.0	0.0	0.04	0.0	16.8	Beirut.
0.0	0.0	0.0	0.0	0.15	0.45	13.5	Haifa.
0.0	0.0	0.0	0.0	0.35	1.90	17.3	Sarona.
0.0	0.0	0.0	0.0	0.0	0.06	2.6	Jaffa.
							El-'Arish.
							Inland :
0.0	0.0	0.0	0.0	1.00	2.48	51.18	El-Qareya.
0.0	0.0	0.004	0.68	1.73	1.30	32.1	Qsāra.
0.0	0.0	0.0	0.0	0.32	0.67	18.5	Nazareth.
0.0	0.0	0.0	0.0	0.0	1.89	15.8	El-Lātrūn.
0.0	0.0	0.0	0.0	0.04	0.47	13.3	Jerusalem.
0.0	0.0	0.0	0.0	0.0	1.10	16.25	Hebron.
0.0	0.0	0.0	0.0	0.0	0.0	0.83	Nekhl.
							Jordan Valley:
0.0	0.0	0.0	0.004	0.91	1.97	—	'Ain et-Tābghah.
0.0	0.0	0.0	0.0	0.0	1.65	14.37	Tiberias.

<i>July.</i> ins.	<i>Aug.</i> ins.	<i>Sept.</i> ins.	<i>Oct.</i> ins.	<i>Nov.</i> ins.	<i>Dec.</i> ins.	
0.39	0.28	2.09	5.47	3.74	4.29	Coast :
0.0	0.0	0.32	1.54	2.20	3.31	Beirut.
—	—	—	—	3.13	2.95	Haifa.
0.0	0.0	0.0	0.16	0.85	0.30	Sarona.
						El-'Arish.
						Inland :
0.06	0.02	0.59	2.24	4.06	4.11	El-Qareya.
0.45	—	0.01	1.02	0.57	1.49	Qsāra (1912).
0.0	0.0	0.30	1.42	1.57	3.07	El-Lātrūn.
—	—	—	—	2.44	4.68	Jerusalem.
—	—	—	—	—	4.08	Hebron.
0.0	0.0	0.0	0.0	0.0	0.32	Nekhl.
						Jordan Valley:
0.004	0.004	0.31	1.46	1.73	1.02	'Ain et-Tābghah.
0.0	0.0	0.05	0.48	1.62	2.35	Tiberias.
		—	—	—	0.98	Qasr Hajleh.

TABLE XIII. MEAN NUMBER OF RAIN DAYS

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Coast :						
Adana	6·8	11·6	9·6	5·5	5·8	2·5
Beirut	15·6	14·5	10·9	6·5	3·2	0·8
Haifa	13·3	9·6	8·3	3·0	2·4	0·1
Sarona	12·4	9·2	6·6	3·6	1·0	0·2
Jaffa	15·2	10·0	7·4	5·0	1·2	0·2
Gaza	8·9	6·4	4·9	1·4	1·5	0·1
El-'Arish	5·6	3·6	3·2	1·7	1·2	0·0
Inland :						
El-Qareya	14·5	11·8	13·8	7·3	5·0	2·0
Qsāra	15·0	16·0	14·0	11·5	5·7	0·0
Damascus	14·0	9·5	6·5	6·5	1·0	—
Nazareth	12·4	12·0	9·9	4·5	1·9	0·0
El-Lātrūn	14·2	9·0	9·6	6·5	2·3	0·4
Jerusalem	12·0	10·3	9·1	5·0	1·6	0·0
Hebron	12·9	10·6	9·4	5·4	1·4	0·1
Nekhl	2·2	2·0	1·2	1·4	0·2	0·0
Jordan Valley:						
'Ain et-Tābghah	12·0	9·0	9·0	6·0	2·5	0·8
Tiberias	10·9	10·3	8·8	3·8	1·3	0·0
Melhamīyeh	12·0	12·2	9·8	4·5	3·3	0·0
Qasr Hajleh	3·0	5·0	0·0	1·0	1·0	—

TABLE XIV. RELATIVE HUMIDITY (MEAN OF THE DAY)

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Coast :	%	%	%	%	%	%
Beirut	69	71	71	72	72	70
Haifa	72	71	69	69	70	72
Sarona	76	75	71	71	71	73
Gaza	76	74	70	68	68	70
El-'Arish	76	77	74	72	73	78
Inland:						
El-Qareya	75	67	69	61	57	61
Qsāra	74	75	67	55	49	45
Damascus	82	78	—	67	—	—
El-Lātrūn	65	63	62	57	49	53
Jerusalem	76	70	70	57	49	52
Hebron	83	78	74	62	53	54
Jordan Valley:						
Tiberias	70	67	63	58	55	46

<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>	
1·0	0·0	1·0	3·8	8·5	5·8	61·7	Coast:
0·3	0·2	1·4	4·6	10·2	13·8	82·0	Adana.
0·0	0·0	0·1	2·8	8·6	13·4	61·6	Beirut.
0·0	0·1	0·2	2·2	8·3	11·7	55·5	Haifa.
0·0	0·0	1·0	4·4	7·5	10·6	62·5	Sarona.
0·0	0·0	0·2	2·7	6·9	7·6	40·6	Jaffa.
0·0	0·0	0·0	0·8	2·3	3·7	20·9	Gaza.
							El-'Arīsh.
0·2	0·5	2·1	5·9	10·5	11·6	85·2	Inland :
0·7	0·0	1·7	7·3	8·7	11·0	91·6	El-Qareya.
—	—	—	—	—	—	—	Qsāra.
0·0	0·0	0·2	2·5	8·1	11·8	63·3	Damascus.
0·1	0·3	0·8	3·3	7·3	10·5	64·3	Nazareth.
0·0	0·0	0·1	1·8	6·4	9·7	56·0	El-Lātrūn.
0·0	0·0	0·3	2·6	6·8	8·9	58·4	Jerusalem.
0·0	0·0	0·0	0·0	0·0	0·6	7·6	Hebron.
							Nekhl.
0·3	0·3	0·8	3·5	6·0	8·0	58·1	Jordan Valley:
0·0	0·0	0·0	1·6	6·4	10·4	53·5	'Ain et-Tābghah.
0·0	0·0	0·0	1·5	5·0	8·3	56·6	Tiberias.
—	—	—	—	—	7·0	—	Melhamīyeh.
							Qasr Hajleh.

<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>	
%	%	%	%	%	%	%	Coast:
68	66	64	66	67	69	69	Beirut.
71	68	67	66	69	72	69	Haifa.
74	72	70	70	71	73	72	Sarona.
71	71	71	69	71	75	71	Gaza.
77	77	75	74	76	80	76	El-'Arīsh.
							Inland :
64	64	67	64	68	74	66	El-Qareya.
47	42	48	54	62	74	58	Qsāra.
49	58	66	—	79	86		Damascus.
53	55	57	55	55	61	57	El-Lātrūn.
57	60	60	54	65	71	62	Jerusalem.
55	59	63	62	72	80	66	Hebron.
							Jordan Valley:
50	52	50	49	60	68	57	Tiberias.

TABLE XV. RELATIVE HUMIDITY, MORNING, AFTERNOON AND EVENING

		MORNING						
		<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>	
		%	%	%	%	%	%	
Coast :								
Beirut, 8½ hr.		69	71	70	71	71	69	
Haifa, 7 hr.		76	76	75	72	75	76	
Sarona, 7 hr.		82	80	78	76	75	74	
Gaza, 7 hr.		82	80	76	72	72	73	
El-'Arīsh, 8 hr.		76	77	72	69	70	74	
Inland :								
El-Qareya, 7½ hr.		74	67	67	58	54	56	
Qsāra, 7 hr.		84	85	77	70	62	58	
El-Lātrūn, 6 hr.		72	70	71	69	65	72	
Jerusalem, 7 hr.		82	76	76	63	55	58	
		AFTERNOON						
Coast :								
Beirut, 14½ hr.		66	67	67	67	66	63	
Haifa, 14 hr.		65	60	58	58	60	60	
Sarona, 13 hr.		65	63	59	59	61	64	
Gaza, 14 hr.		68	64	61	57	57	60	
El-'Arīsh, 14 hr.		65	65	62	66	68	74	
Inland :								
El-Qareya, 13 hr.		72	63	65	59	54	58	
Qsāra, 13 hr.		62	65	53	40	36	33	
El-Lātrūn, 12 hr.		58	55	52	44	36	38	
Jerusalem, 13 hr.		66	58	57	42	33	32	
		EVENING						
Coast :								
Beirut, 20½ hr.		73	74	74	78	79	79	
Haifa, 22 hr.		75	76	74	76	76	79	
Sarona, 21 hr.		81	82	76	77	78	81	
Gaza, 21 hr.		78	78	74	74	74	77	
El-'Arīsh, 20 hr.		76	77	75	74	76	83	
Inland :								
El-Qareya, 19½ hr.		79	71	74	66	64	68	
Qsāra, 19½ hr.		75	77	66	56	47	45	
El-Lātrūn, 18 hr.		65	64	64	57	46	50	
Jerusalem, 21 hr.		79	77	77	66	59	66	
Jordan Valley (no evening record) :								
Tiberias, 8 hr.		73	71	68	65	60	58	
„ 16 hr.		66	62	59	52	41	35	

<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>	
%	%	%	%	%	%	%	
66	65	63	65	66	69	68	Coast :
77	73	72	70	72	76	74	Beirut, 8½ hr.
74	74	74	73	77	78	76	Haifa, 7 hr.
74	75	76	76	77	80	76	Sarona, 7 hr.
74	73	72	72	74	81	74	Gaza, 7 hr.
							El-'Arish, 8 hr.
							Inland :
57	58	62	60	66	73	63	El-Qareya, 7½ hr.
61	56	64	69	78	84	71	Qsāra, 7 hr.
72	75	78	71	66	69	71	El-Lātrūn, 6 hr.
65	71	72	64	73	78	70	Jerusalem, 7 hr.
							Coast :
61	59	59	62	63	66	64	Beirut, 14½ hr.
58	57	55	56	59	64	59	Haifa, 14 hr.
65	62	59	60	58	63	62	Sarona, 13 hr.
62	62	63	62	62	67	62	Gaza, 14 hr.
73	71	69	68	64	67	68	El-'Arish, 14 hr.
							Inland :
62	62	64	63	65	71	63	El-Qareya, 13 hr.
36	29	30	37	44	61	44	Qsāra, 13 hr.
37	38	38	38	43	52	44	El-Lātrūn, 12 hr.
35	36	36	36	50	60	45	Jerusalem, 13 hr.
							Coast :
78	75	72	72	70	72	75	Beirut, 20½ hr.
79	75	74	72	75	75	75	Haifa, 22 hr.
82	79	76	76	77	77	79	Sarona, 21 hr.
77	75	73	69	74	79	75	Gaza, 21 hr.
81	82	78	75	77	79	78	El-'Arish, 20 hr.
							Inland :
73	73	76	70	72	77	72	El-Qareya, 19½ hr.
45	42	48	57	65	77	58	Qsāra, 19½ hr.
49	51	54	55	57	62	56	El-Lātrūn, 18 hr.
70	74	73	63	72	76	71	Jerusalem, 21 hr.
							Jordan Valley (no evening record) :
59	61	59	55	64	70	64	Tiberias, 8 hr.
40	42	41	43	56	66	50	„ 16 hr.

TABLE XVI. CLOUD (0—10), MEAN OF DAY

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Coast :						
Adana	4·3	5·6	4·8	1·8	1·3	1·3
Beirut	5·6	5·6	4·8	4·2	3·2	1·4
Haifa	5·2	4·6	4·7	3·7	3·0	2·5
Sarona	5·1	5·0	4·6	4·2	3·0	1·7
Jaffa (7 a.m.)	4·6	4·0	3·7	3·4	2·3	1·4
Gaza	3·6	3·1	3·3	2·6	2·4	1·7
El-'Arish	3·2	2·7	2·2	2·0	1·4	0·9
Inland :						
El-Qareya	5·9	5·2	5·7	5·0	3·8	2·6
Qsāra	5·9	5·9	4·5	4·9	4·0	0·8
Nazareth	4·9	4·6	5·4	4·3	3·5	2·2
El-Lātrūn	4·0	3·4	3·6	2·8	1·5	0·6
Jerusalem :						
9 a.m. 16 yrs., to 1882	4·4	4·8	5·0	3·7	2·4	1·1
Mean of day, 10 yrs., to 1905	5·2	4·8	5·1	3·9	2·9	1·2
Hebron	5·9	5·5	5·3	4·0	1·6	0·6
Jordan Valley:						
'Ain et-Tābghah	3·6	3·3	3·3	3·3	2·0	1·3
Tiberias	6·2	4·6	4·3	3·1	1·2	0·5
Melhamiyeh	3·7	4·0	4·1	3·0	1·8	0·9
Jericho	2·4	4·1	—	1·1	1·1	0·8

TABLE XVII. MEAN NUMBER OF DAYS WITH HAIL

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Coast :						
Beirut	1·2	1·6	1·6	0·4	0·1	0·1
Sarona	1·0	0·0	0·0	0·0	0·0	0·0
Inland :						
El-Qareya	0·6	0·6	3·6	0·6	0·6	0·0
El-Lātrūn	0·3	0·7	0·6	0·3	0·0	0·0
Jerusalem	0·3	0·8	0·6	0·1	0·1	0·0
Bethlehem	0·4	0·6	0·8	0·2	0·0	0·0

<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>	
1·3	0·6	1·6	1·3	2·7	2·4	2·4	Coast :
1·5	1·7	1·9	2·6	4·2	5·3	3·5	Adana.
2·6	2·5	2·1	2·6	4·2	5·1	3·6	Beirut.
2·1	1·9	2·1	2·5	4·1	4·7	3·4	Haifa.
1·8	2·2	2·3	2·4	3·0	3·6	2·9	Sarona.
1·6	1·8	1·8	2·1	3·2	3·5	2·6	Jaffa.
0·9	1·0	1·2	1·7	2·1	2·4	1·8	Gaza.
							El-'Arīsh.
							Inland :
2·3	2·0	2·2	3·5	4·6	5·6	4·0	El-Qareya.
0·6	0·3	1·0	3·3	3·7	5·3	3·4	Qsāra.
3·5	3·6	2·3	2·5	4·5	5·1	3·9	Nazareth.
0·4	0·4	0·8	1·8	2·7	3·4	2·1	El-Lātrūn.
							Jerusalem :
0·6	0·9	1·2	2·3	3·5	4·6	2·8	9 a.m. 16 yrs., to 1882.
0·8	1·0	1·3	2·5	3·7	4·9	3·1	{ Mean of day, 10
							{ yrs., to 1905.
0·6	0·5	1·4	2·8	4·1	4·6	3·1	Hebron.
							Jordan Valley :
1·3	2·4	1·8	2·1	3·1	4·0	2·6	'Ain et-Tābghah.
0·6	0·6	1·1	1·0	4·1	4·5	2·7	Tiberias.
0·4	0·5	—	—	1·6	4·2	—	Melhamiyeh.
0·1	—	—	—	—	—	—	Jericho.

<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>	
0·0	0·0	0·0	0·1	0·4	1·2	6·7	Coast :
0·0	0·0	0·0	0·0	0·3	1·3	2·6	Beirut.
							Sarona.
							Inland :
0·0	0·0	0·2	0·2	0·0	1·4	7·8	El-Qareya.
0·0	0·0	0·0	0·0	0·1	0·6	2·6	El-Lātrūn.
0·0	0·0	0·0	0·0	0·1	0·7	2·7	Jerusalem.
0·0	0·0	0·0	0·0	0·0	0·2	2·2	Bethlehem.

TABLE XVIII. MEAN NUMBER OF DAYS WITH
THUNDERSTORMS

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Coast :						
Beirut	2·7	2·7	2·4	1·2	1·1	0·2
Sarona	2·0	1·4	1·0	0·3	0·3	0·0
Wilhelma	0·2	0·8	1·2	1·2	0·7	0·0
Gaza	0·7	0·9	0·9	0·3	0·2	0·0
Inland :						
El-Qareya	0·4	1·6	3·2	1·0	0·8	0·6
Damascus	1·0	6·0	2·0	4·0	2·0	—
El-Lâtrün	0·4	0·7	0·7	0·7	0·6	0·0
Jerusalem	0·4	0·7	1·2	1·0	0·8	0·1
Bethlehem	0·2	0·6	0·6	0·2	1·0	0·0
Hebron	0·3	1·4	1·0	0·2	0·8	0·0
Jordan Valley :						
‘Ain et-Tâbghah	2·5	3·0	2·5	1·0	1·5	0·0

TABLE XIX. MEAN NUMBER OF DAYS WITH FOG

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Coast :						
Beirut	0·04	0·00	0·08	0·20	0·30	0·08
Sarona	0·00	0·80	1·80	2·20	2·00	1·20
Gaza	0·00	0·70	0·40	1·10	1·50	2·50
Inland :						
El-Qareya	0·00	0·40	0·20	0·60	0·20	0·40
El-Lâtrün	0·10	0·60	0·30	2·10	2·40	2·60
Jerusalem	2·40	1·70	1·40	0·60	0·40	0·80
Jordan Valley :						
‘Ain et-Tâbghah	4·00	3·50	4·00	3·70	3·50	2·00

<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>	
° 0·04	0·0	0·2	2·4	4·2	3·4	20·8	Coast :
0·0	0·0	0·0	1·0	2·8	3·5	12·3	Beirut.
0·0	0·0	0·0	0·2	1·0	1·0	6·3	Sarona.
0·0	0·0	0·0	0·7	2·1	1·4	7·2	Wilhelma.
							Gaza.
0·0	0·0	0·4	2·8	3·6	2·4	16·8	Inland :
—	—	—	—	—	—		El-Qareya.
0·0	0·0	0·0	2·0	1·6	1·4	8·1	Damascus.
0·0	0·0	0·0	0·8	1·4	1·0	7·4	El-Lâtrûn.
0·0	0·0	0·0	0·7	0·7	0·0	4·0	Jerusalem.
0·0	0·0	0·0	0·8	1·3	0·2	6·0	Bethlehem.
							Hebron.
0·0	0·0	0·2	2·5	2·2	3·0	18·5	Jordan Valley :
							'Ain et-Tâbghah.

<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>	
0·00	0·00	0·00	0·00	0·00	0·04	0·74	Coast :
0·80	0·30	0·00	1·00	0·00	2·00	12·10	Beirut.
2·60	0·90	0·70	2·10	0·30	0·10	12·90	Sarona.
							Gaza.
1·00	0·80	0·60	0·20	0·00	0·00	4·40	Inland :
3·30	3·30	0·70	0·60	0·60	0·10	16·70	El-Qareya.
0·60	1·40	2·10	0·80	1·40	1·60	15·20	El-Lâtrûn.
							Jerusalem.
1·30	1·30	3·30	1·00	1·50	3·70	32·80	Jordan Valley :
							'Ain et-Tâbghah.

TABLE XX. MEAN NUMBER OF DAYS WITH STORM

				<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Coast :									
Beirut	.	.	.	0·8	0·2	0·6	0·0	0·1	0·0
Sarona	.	.	.	2·0	2·0	3·2	1·2	1·5	0·8
Wilhelma	.	.	.	2·6	1·8	1·5	4·7	3·5	3·0
Gaza	.	.	.	2·1	1·6	0·6	0·1	0·5	0·0
Inland :									
El-Lâtrûn	.	.	.	5·7	9·1	6·0	8·4	5·3	0·6
Jerusalem	.	.	.	3·6	3·8	4·2	1·5	0·8	0·8

TABLE XXI. MEAN NUMBER OF DAYS WITH SNOW

				<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>
Inland :									
El-Qareya	.	.	.	3·2	2·0	1·6	0·2	0·0	0·0
Damascus	.	.	.	2·0	1·0	0·0	0·0	0·0	—
El-Lâtrûn	.	.	.	0·0	0·1	0·0	0·0	0·0	0·0
Jerusalem	.	.	.	1·4	0·5	0·2	0·0	0·0	0·0
Bethlehem	.	.	.	1·2	0·4	0·0	0·0	0·0	0·0

<i>July.</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>	
0·1	0·0	0·2	0·1	0·4	0·6	3·1	Coast :
0·6	1·3	1·5	0·5	1·5	4·0	20·1	Beirut.
1·5	1·6	1·8	1·8	0·4	0·0	24·2	Sarona.
0·0	0·1	0·0	0·4	0·4	2·0	7·8	Wilhelma.
							Gaza.
							Inland :
0·4	0·1	1·3	4·4	6·4	10·4	58·1	El-Lâtrûn.
0·4	0·1	0·1	0·3	0·8	3·3	19·7	Jerusalem.

<i>July</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Year.</i>	
0·0	0·0	0·0	0·0	0·6	2·4	10·0	Inland :
—	—	—	—	—	—		El-Qareya.
0·0	0·0	0·0	0·0	0·0	0·0	0·1	Damascus.
0·0	0·0	0·0	0·0	0·1	0·7	2·9	El Lâtrûn.
0·0	0·0	0·0	0·0	0·0	0·4	2·0	Jerusalem.
							Bethlehem.

TABLE XXII. WIND DIRECTION

JANUARY

<i>Station.</i>	<i>Direction.</i>								
	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
Coast :									
Beirut . .	7.8	9.6	10.2	18.7	10.2	20.5	6.4	3.2	13.4
Haifa . .	8.1	2.3	48.2	5.7	13.8	5.6	14.3	1.2	0.8
Sarona . .	4.5	7.7	7.7	14.9	31.6	7.1	2.3	4.2	20.0
Jaffa . .	4.8	4.0	12.1	6.5	18.5	17.0	6.5	5.6	25.0
Gaza . .	1.1	1.1	10.7	1.5	0.9	23.9	9.0	0.6	51.2
El-'Arīsh .	5.4	5.0	5.4	1.5	18.3	28.8	15.2	5.8	14.8
Inland :									
El-Qareya .	5.7	1.4	14.2	9.0	9.5	12.8	13.5	2.9	30.9
Qsāra . .	4.8	9.1	8.6	1.1	4.8	15.6	19.4	9.7	26.9
Nazareth .	4.5	19.3	27.3	13.6	9.1	6.8	10.2	9.2	0.0
Jerusalem .	2.3	1.0	24.3	1.6	1.4	10.6	30.4	4.1	24.3
El-Lātrūn .	3.8	2.8	17.1	13.8	5.9	17.3	11.0	17.1	11.2
Hebron . .	6.9	6.6	9.9	9.5	3.2	6.1	30.4	27.1	0.4
Nekhl . .	1.6	1.6	0.8	1.6	0.8	25.8	67.0	0.8	0.0
Jordan Valley :									
'Ain et-Tābghah	7.3	4.7	17.7	3.0	8.7	6.0	18.7	3.7	30.3
Tiberias . .	6.0	0.0	3.0	0.0	0.0	0.0	10.0	0.0	81.0
Melhamīyeh .	10.1	3.4	10.1	6.7	7.9	12.4	6.7	1.1	41.6
Jericho . .	13.9	0.0	5.1	0.0	19.0	1.4	36.7	2.5	21.5

FEBRUARY

Coast :									
Beirut . .	8.5	9.5	8.1	13.0	8.9	25.9	5.4	5.4	15.3
Haifa . .	12.2	1.3	35.0	1.9	15.1	5.6	23.0	1.5	4.4
Sarona . .	4.2	5.7	3.5	16.3	23.3	13.8	4.6	1.8	26.8
Jaffa . .	2.1	5.6	24.0	12.7	14.1	15.5	6.3	4.2	15.5
Gaza . .	3.8	0.2	12.1	3.6	1.0	19.6	8.0	2.1	49.6
El-'Arīsh .	7.0	7.2	4.0	2.2	14.7	31.7	12.6	5.4	15.2
Inland :									
El-Qareya .	3.9	2.6	8.2	16.3	10.9	11.9	17.4	5.3	23.5
Qsāra . .	1.2	8.2	5.8	2.3	5.8	12.3	35.1	9.4	19.9
Nazareth .	11.2	21.2	22.5	10.0	6.3	8.8	11.2	8.8	0.0
Jerusalem .	1.1	1.1	21.6	2.1	0.8	6.8	39.1	4.3	23.1
El-Lātrūn .	1.9	1.5	11.2	15.4	7.1	17.7	19.6	15.5	10.2
Hebron . .	7.4	6.3	6.5	11.3	3.6	3.9	31.8	29.2	0.0
Nekhl . .	0.0	0.0	0.8	1.8	2.6	36.0	57.0	1.8	0.0
Jordan Valley :									
'Ain et-Tābghah	4.4	2.5	17.2	1.3	6.6	6.6	21.0	3.1	37.3
Tiberias . .	0.0	0.0	11.0	0.0	0.0	0.0	7.0	0.0	82.0
Melhamīyeh .	15.1	0.7	2.7	4.8	11.0	9.6	21.9	11.0	23.3
Jericho . .	11.9	0.0	10.2	3.4	23.7	0.0	37.3	0.0	13.6

PERCENTAGE OF OBSERVATIONS

MARCH

<i>Station.</i>	<i>Direction.</i>								
	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
Coast :									
Beirut .	10.4	11.8	7.1	6.1	5.0	31.5	6.9	4.5	16.7
Haifa .	15.1	0.3	30.4	2.3	10.1	4.3	30.1	4.6	2.8
Sarona .	3.2	5.2	3.2	9.4	18.7	15.5	11.6	5.2	28.0
Jaffa .	1.3	3.2	24.6	7.0	18.1	25.6	5.2	1.3	13.7
Gaza .	5.8	0.6	8.8	4.1	0.9	21.3	13.8	1.3	43.4
El-'Arish .	7.9	7.6	6.2	0.9	16.8	24.8	16.7	12.8	6.5
Inland :									
El-Qareya .	5.1	1.5	10.2	11.3	9.7	12.1	22.1	7.1	21.0
Qsara .	3.2	4.3	2.7	3.8	4.3	17.2	32.3	9.7	22.6
Nazareth .	10.3	12.6	17.2	11.4	3.4	15.0	18.5	11.6	0.0
Jerusalem .	1.1	2.1	13.9	2.6	1.2	6.3	42.1	7.1	23.6
El-Lātrūn .	4.0	0.7	10.4	16.1	6.3	9.9	18.1	25.4	9.0
Hebron .	6.2	5.2	7.8	12.0	3.4	3.5	30.1	31.6	0.0
Nekhl .	1.6	6.5	0.8	0.8	3.1	15.2	67.7	4.3	0.0
Jordan Valley :									
'Ain et-Tābghah .	5.2	3.3	6.1	0.3	6.4	7.2	36.4	2.5	38.7
Tiberias .	6.0	0.0	0.0	0.0	10.0	0.0	6.0	0.0	78.0
Melhamiyeh .	14.0	1.2	3.5	0.6	8.2	4.7	16.4	12.9	38.6
Jericho .	No records.								

APRIL

Coast :									
Beirut .	9.3	13.6	5.3	3.4	3.5	36.3	8.7	5.3	14.6
Haifa .	19.4	0.8	19.8	2.4	7.5	5.9	36.3	4.9	3.0
Sarona .	2.3	2.7	2.0	4.0	12.0	19.3	19.3	9.0	29.4
Jaffa .	1.3	0.7	33.3	7.3	18.7	18.0	4.0	0.0	16.7
Gaza .	3.5	0.5	12.0	1.4	0.7	11.8	22.9	3.0	44.2
El-'Arish .	9.0	11.5	8.7	2.1	7.9	24.8	10.9	10.4	14.8
Inland :									
El-Qareya .	3.8	1.9	5.6	18.9	7.7	7.7	23.0	7.8	23.6
Qsara .	3.9	7.2	5.0	2.8	9.4	25.0	23.9	6.7	16.1
Nazareth .	11.7	10.4	19.5	9.1	1.3	10.4	22.1	15.5	0.0
Jerusalem .	1.3	1.8	16.4	2.6	1.4	2.8	37.8	11.5	24.4
El-Lātrūn .	3.9	1.7	8.5	17.2	4.9	6.8	13.8	30.6	12.8
Hebron .	9.8	4.7	10.5	11.2	3.8	3.1	22.9	33.6	0.4
Nekhl .	7.5	10.0	5.0	1.7	10.0	15.0	45.7	5.0	0.0
Jordan Valley :									
'Ain et-Tābghah .	3.6	0.3	8.9	0.3	6.8	4.2	33.6	5.4	36.9
Tiberias .	0.0	0.0	0.0	0.0	0.0	0.0	33.0	0.0	67.0
Melhamiyeh .	27.9	7.0	1.2	2.3	7.0	2.3	18.6	7.0	26.7
Jericho .	9.1	1.1	11.4	3.4	9.1	0.0	9.1	38.6	18.2

MAY

<i>Station.</i>	<i>Direction.</i>								
	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
Coast :									
Beirut .	11.9	14.3	3.8	1.1	2.9	33.6	10.4	8.2	13.8
Haifa .	14.4	0.8	13.2	0.8	8.0	6.6	42.7	8.9	4.6
Sarona .	4.5	2.3	2.3	1.0	3.2	24.2	25.8	19.3	17.4
Jaffa .	0.0	1.1	21.0	5.3	20.0	24.7	1.6	0.0	26.3
Gaza .	5.9	0.0	17.8	2.7	0.5	9.4	29.3	3.5	30.9
El-'Arish .	15.0	14.4	10.7	3.8	9.2	15.2	8.9	10.4	12.4
Inland :									
El-Qareya .	7.3	3.7	6.4	13.7	6.9	4.2	21.1	10.9	25.8
Qsāra .	3.9	1.4	5.0	2.5	4.3	21.1	35.8	14.0	11.8
Nazareth .	22.1	9.3	5.8	10.4	2.3	22.1	15.2	12.8	0.0
Jerusalem .	4.4	2.0	11.7	1.8	1.0	3.0	37.3	18.4	20.4
El-Lātrūn .	3.9	1.8	4.3	14.1	5.1	3.3	8.9	41.9	16.8
Hebron .	11.7	4.4	7.5	10.2	4.8	4.5	16.3	40.6	0.1
Nekhl .	3.1	9.7	6.5	1.6	0.8	15.3	55.7	7.3	0.0
Jordan Valley :									
'Ain et-Tābghah .	2.2	2.7	5.7	0.8	4.3	7.0	42.0	7.8	27.5
Tiberias .	0.0	0.0	0.0	0.0	0.0	0.0	71.0	0.0	29.0
Melhamiyeh .	18.2	3.6	2.4	1.8	9.7	0.0	18.2	19.4	26.7
Jericho .	11.2	3.4	12.4	10.1	14.6	0.0	7.9	31.5	9.0

JUNE

Coast :									
Beirut .	7.4	7.3	1.2	0.1	2.7	50.5	14.2	4.9	11.7
Haifa .	10.5	0.5	2.9	0.9	5.1	8.2	60.2	7.0	4.7
Sarona .	1.7	1.3	1.3	1.0	2.6	33.6	32.6	13.6	12.3
Jaffa .	0.0	0.0	5.0	10.5	33.3	26.1	2.8	0.5	21.8
Gaza .	4.9	0.0	17.1	0.7	1.3	1.3	30.5	2.0	42.2
El-'Arish .	24.2	6.2	3.1	1.2	4.4	13.8	9.9	20.6	16.7
Inland :									
El-Qareya .	8.8	2.8	3.2	3.9	2.6	1.0	23.9	15.5	37.9
Qsāra .	4.4	2.6	2.2	0.7	4.1	14.4	30.0	22.6	18.9
Nazareth .	13.1	6.0	3.6	2.4	0.0	23.8	26.2	24.9	0.0
Jerusalem .	3.4	1.3	2.8	0.3	0.2	0.8	48.1	26.8	16.3
El-Lātrūn .	3.1	0.4	1.2	11.7	5.4	2.6	9.2	51.1	15.3
Hebron .	12.1	2.9	2.9	2.2	1.5	2.1	17.7	58.5	0.1
Nekhl .	6.7	14.2	3.3	1.7	1.7	13.3	53.3	5.8	0.0
Jordan Valley :									
'Ain et-Tābghah .	1.5	0.4	10.2	0.8	3.8	6.0	41.0	8.3	28.2
Tiberias .	0.0	0.0	0.0	0.0	0.0	0.0	93.0	0.0	7.0
Melhamiyeh .	7.5	0.0	2.5	2.5	11.2	3.8	27.5	21.2	23.8
Jericho .	10.6	3.5	5.9	3.5	30.6	1.2	14.1	23.5	7.1

JULY

<i>Station.</i>	<i>Direction.</i>								
	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
Coast :									
Beirut . . .	4.4	1.6	0.3	0.1	4.4	60.2	15.9	3.3	9.8
Haifa . . .	1.4	0.2	1.8	0.9	9.1	19.2	62.1	2.0	3.5
Sarona . . .	0.0	0.0	1.3	0.3	0.3	56.3	30.4	3.3	8.1
Jaffa . . .	0.0	0.8	0.8	9.7	30.6	37.9	2.4	7.2	10.6
Gaza . . .	1.6	0.6	16.7	0.5	0.5	4.8	29.0	1.1	45.2
El-'Arīsh . .	16.6	2.9	0.5	0.1	2.8	30.4	15.9	18.2	12.7
Inland :									
El-Qareya . .	9.1	1.9	1.9	0.8	2.9	1.8	19.1	15.8	47.0
Qsāra . . .	5.0	1.1	1.8	2.2	0.4	13.3	31.7	26.6	18.0
Nazareth . .	7.3	0.0	2.4	0.0	0.0	40.3	31.7	18.3	0.0
Jerusalem . .	1.8	0.0	0.5	0.0	0.1	1.0	51.9	30.7	14.0
El-Lātrūn . .	1.1	0.1	1.1	13.8	5.2	3.4	11.4	49.1	14.8
Hebron . . .	10.6	1.3	1.1	0.7	1.0	1.2	17.1	66.8	0.1
Nekhl . . .	8.1	10.5	4.8	1.6	0.0	8.9	61.3	4.8	0.0
Jordan Valley :									
'Ain et-Tābghah	2.9	1.2	10.4	1.2	1.2	6.6	46.5	8.3	21.6
Tiberias . . .	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Melhamīyeh . .	0.6	0.0	0.6	0.0	4.2	7.3	43.6	10.9	32.6
Jericho . . .	14.4	1.1	17.8	3.3	28.9	0.0	5.6	10.0	18.9

AUGUST

Coast :									
Beirut . . .	5.7	3.9	0.7	0.1	5.4	44.9	18.9	6.8	13.6
Haifa . . .	5.4	0.3	2.0	1.4	8.7	15.7	58.2	4.6	3.7
Sarona . . .	0.3	0.0	0.3	1.3	4.5	48.2	23.2	8.0	14.2
Jaffa . . .	0.0	0.0	1.1	16.1	47.3	20.4	1.1	0.0	14.0
Gaza . . .	3.5	0.0	18.5	0.4	1.3	1.9	24.5	8.2	41.7
El-'Arīsh . .	13.1	1.4	0.3	0.0	4.0	24.1	18.2	19.7	19.1
Inland :									
El-Qareya . .	8.7	1.6	1.2	2.3	4.3	1.5	17.4	14.4	48.7
Qsāra . . .	5.4	2.5	1.1	0.4	2.2	11.5	30.1	24.7	22.2
Nazareth . .	10.8	1.2	0.0	1.2	0.0	21.4	39.3	26.1	0.0
Jerusalem . .	2.2	0.5	0.5	0.2	0.1	0.6	44.9	35.2	15.8
El-Lātrūn . .	6.2	0.1	2.2	18.0	2.2	0.9	8.5	49.2	12.8
Hebron . . .	14.3	1.5	0.7	1.6	1.4	0.9	10.5	68.4	0.7
Nekhl . . .	5.6	13.7	1.6	0.8	0.0	13.7	54.8	7.2	0.0
Jordan Valley :									
'Ain et-Tābghah	3.5	1.4	11.0	0.4	3.2	6.4	37.6	6.7	29.8
Tiberias . . .	0.0	0.0	0.0	0.0	0.0	0.0	58.0	0.0	42.0
Melhamīyeh . .	3.3	0.0	1.1	1.1	1.1	7.6	5.4	39.1	41.3
Jericho . . .	No records.								

SEPTEMBER

<i>Station.</i>	<i>Direction.</i>								
	N.	N	E.	SE.	S.	SW.	W.	NW.	C.
Coast:									
Beirut . . .	16.5	11.5	1.6	0.3	2.7	29.7	15.3	9.0	13.4
Haifa . . .	19.7	0.8	7.5	1.4	1.4	4.9	46.7	9.5	8.1
Sarona . . .	5.7	2.0	0.3	0.7	5.4	35.4	13.0	12.4	25.1
Jaffa . . .	0.0	1.6	3.3	6.0	23.3	22.5	10.0	0.0	33.3
Gaza . . .	2.0	0.0	25.0	0.4	0.0	2.9	27.2	4.0	38.5
El-'Arish . .	12.8	4.1	1.3	0.4	4.8	23.7	11.7	21.2	20.0
Inland:									
El-Qareya . .	5.8	4.8	3.7	4.1	6.8	9.6	18.2	7.8	39.2
Qsāra . . .	3.0	1.5	1.1	1.5	3.3	15.6	30.4	15.9	27.8
Nazareth . .	22.2	6.2	6.2	2.4	1.2	14.7	23.6	23.5	0.0
Jerusalem . .	5.0	1.9	4.8	1.3	0.0	1.7	34.9	30.0	20.4
El-Lātrūn . .	9.6	1.4	4.4	15.7	2.1	1.1	5.7	47.1	12.9
Hebron . . .	15.8	2.5	2.6	3.1	1.9	1.2	11.6	61.0	0.2
Nekhl . . .	13.3	30.0	3.3	0.8	0.0	8.3	39.2	5.0	0.0
Jordan Valley:									
'Ain et-Tābghah	1.4	0.8	14.0	1.1	1.1	5.0	36.0	3.1	37.4
Tiberias . . .	0.0	0.0	0.0	0.0	0.0	0.0	23.0	0.0	77.0
Melhamiyeh . .	No records.								
Jericho . . .	No records.								

OCTOBER

Coast:									
Beirut . . .	20.2	19.4	4.6	2.5	4.4	19.7	6.4	5.2	17.6
Haifa . . .	18.9	1.3	24.8	2.3	2.9	2.3	32.1	9.5	5.9
Sarona . . .	5.8	4.2	4.8	5.5	9.7	14.5	4.5	8.4	42.6
Jaffa . . .	0.0	1.6	18.5	11.3	20.2	17.7	2.4	0.0	28.3
Gaza . . .	3.0	0.5	22.8	5.1	0.8	2.4	25.5	4.9	35.0
El-'Arish . .	16.2	8.3	3.3	0.9	13.1	17.1	15.4	13.0	12.7
Inland:									
El-Qareya . .	4.4	0.9	10.8	13.9	10.0	8.0	20.0	5.6	26.4
Qsāra . . .	3.2	6.1	3.9	1.8	2.9	14.0	28.3	10.8	29.3
Nazareth . .	31.2	21.2	13.7	7.5	2.5	3.8	6.2	13.9	0.0
Jerusalem . .	2.9	3.1	18.7	1.5	0.7	1.9	27.0	13.0	31.2
El-Lātrūn . .	10.2	1.5	11.0	15.6	3.4	4.0	7.8	35.5	11.0
Hebron . . .	14.3	8.3	8.3	7.5	1.7	2.2	13.6	42.2	2.1
Nekhl . . .	7.2	23.4	1.6	3.1	0.0	13.7	48.5	2.4	0.0
Jordan Valley:									
'Ain et-Tābghah	2.7	1.1	16.3	0.5	2.7	3.5	18.4	5.1	49.6
Tiberias . . .	0.0	0.0	0.0	0.0	3.0	0.0	42.0	0.0	55.0
Melhamiyeh . .	No records.								
Jericho . . .	No records.								

NOVEMBER

<i>Station.</i>	<i>Direction.</i>								
	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
Coast:									
Beirut . . .	11.0	12.1	8.3	10.4	9.2	19.2	7.5	3.4	18.9
Haifa . . .	13.2	0.2	37.1	3.0	7.5	5.2	24.9	4.6	-4.3
Sarona . . .	1.0	6.3	5.0	11.7	22.0	12.3	2.3	2.0	37.4
Jaffa . . .	5.0	8.3	19.4	7.2	14.4	18.3	4.4	2.2	21.8
Gaza . . .	1.6	0.9	16.9	4.8	0.9	10.5	21.7	0.7	42.0
El-'Arish . .	6.2	11.4	3.7	1.6	13.3	31.8	12.4	7.1	12.4
Inland:									
El-Qareya . .	5.2	0.7	11.7	10.1	12.8	13.7	16.4	4.0	25.4
Qsāra . . .	4.1	6.3	5.9	1.1	5.9	16.7	20.7	6.7	32.6
Nazareth . .	12.0	28.8	22.8	8.4	6.0	7.2	6.0	8.8	0.0
Jerusalem . .	2.4	1.8	23.0	3.5	0.6	4.0	28.9	5.0	30.8
El-Lātrūn . .	5.3	1.4	16.1	15.0	5.3	10.0	11.9	20.6	14.4
Hebron . . .	11.0	7.9	11.9	7.9	2.4	3.0	21.7	34.1	0.3
Nekhl . . .	3.3	3.3	4.2	3.3	0.0	17.5	60.0	8.3	0.0
Jordan Valley:									
'Ain et-Tābghah	3.7	2.3	14.6	1.1	5.1	2.6	13.1	2.9	54.6
Tiberias . . .	0.0	0.0	10.0	0.0	0.0	0.0	13.0	0.0	77.0
Melhamiyeh . .	12.6	2.3	1.1	0.0	4.6	0.0	1.1	4.6	73.6
Jericho . . .	No records.								

DECEMBER

Coast:									
Beirut . . .	8.0	8.9	11.6	16.1	12.2	20.1	5.7	3.0	14.4
Haifa . . .	5.0	1.4	53.6	3.4	8.4	6.1	15.6	3.8	2.7
Sarona . . .	1.6	8.7	6.1	16.8	25.5	8.4	3.6	0.6	28.7
Jaffa . . .	3.2	8.6	24.7	7.5	14.5	16.7	1.1	1.1	22.6
Gaza . . .	1.3	0.2	13.7	2.6	2.6	22.8	11.6	0.9	44.3
El-'Arish . .	3.3	5.3	4.0	1.2	15.5	38.5	15.7	4.7	11.8
Inland:									
El-Qareya . .	6.8	1.0	15.5	7.8	9.7	11.8	16.1	3.0	28.3
Qsāra . . .	2.5	9.7	9.0	3.2	5.4	13.6	21.1	9.7	25.8
Nazareth . .	3.4	18.2	28.5	20.5	6.8	14.8	2.2	5.6	0.0
Jerusalem . .	0.8	0.8	25.2	3.6	0.8	7.1	32.1	2.5	27.1
El-Lātrūn . .	3.6	2.3	21.8	15.2	4.0	19.2	10.1	13.7	10.1
Hebron . . .	7.4	7.4	13.0	10.9	3.1	5.2	27.0	26.1	0.0
Nekhl . . .	3.1	4.8	1.6	1.6	0.0	17.0	63.0	8.9	0.0
Jordan Valley:									
'Ain et-Tābghah	3.1	5.6	24.8	2.8	4.7	5.8	9.5	2.5	41.2
Tiberias . . .	0.0	0.0	29.0	0.0	3.0	0.0	0.0	0.0	68.0
Melhamiyeh . .	8.2	2.4	2.4	10.6	15.3	15.3	8.2	8.2	29.4
Jericho . . .	No record.								

TABLE XXIII. WIND DIRECTIONS PER

An asterisk denotes less than 0.1.

JANUARY

<i>Station.</i>	<i>Direction.</i>									
	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.	
Coast:										
Beirut . .	6·6	8·1	8·6	15·9	8·6	17·3	5·4	2·7	11·5	
Haifa . .	7·0	2·0	41·0	5·0	11·0	4·0	12·0	1·0	1·0	
Jaffa . .	4·1	3·4	10·2	5·5	15·6	14·5	5·5	4·8	21·3	
Gaza . .	0·9	0·9	9·1	1·3	0·8	20·4	7·6	0·5	43·5	
El-'Arīsh. .	4·0	4·0	4·0	1·0	13·0	21·0	11·0	4·0	11·0	
Inland:										
El-Qareya .	5·9	1·3	13·0	7·0	7·6	14·5	14·0	2·6	24·1	
Nazareth. .	4·0	17·0	24·0	12·0	8·0	6·0	9·0	8·0	0·0	
Jerusalem .	2·0	0·8	20·6	1·4	1·2	8·9	25·7	3·5	20·6	
El-Lātrūn .	3·2	2·4	14·5	11·8	5·0	14·7	9·4	14·5	9·5	
Hebron . .	5·0	6·2	7·9	8·8	3·0	5·6	26·1	21·9	0·5	
Nekhl . .	1·6	1·6	0·5	1·6	0·5	22·6	58·0	0·5	0·0	

FEBRUARY

Coast:									
Beirut . .	6.6	7.3	6.3	10.0	6.9	20.1	4.2	4.2	11.7
Haifa . .	8.0	1.0	28.0	1.0	11.0	4.0	18.0	1.0	3.0
Jaffa . .	1.6	4.4	18.4	9.8	10.8	11.9	4.8	3.3	11.9
Gaza . .	2.9	0.1	9.3	2.8	0.8	15.1	6.2	1.6	38.2
El-'Arīsh. .	5.0	5.0	3.0	1.0	10.0	21.0	8.0	4.0	10.0
Inland:									
El-Qareya .	1.4	1.8	7.5	13.3	6.9	11.7	18.8	4.2	16.4
Nazareth. .	9.0	17.0	18.0	8.0	5.0	7.0	9.0	7.0	0.0
Jerusalem .	0.8	0.8	16.8	1.6	0.6	5.3	30.3	3.4	18.0
El-Lātrūn .	1.5	1.1	8.7	11.9	5.5	13.7	15.2	12.0	7.9
Hebron . .	5.7	5.2	3.3	10.3	3.7	3.3	24.3	21.3	0.0
Nekhl . .	0.0	0.0	0.5	1.6	2.1	26.3	42.1	1.6	0.0

MARCH

Coast:									
Beirut . .	8.7	10.0	6.0	5.0	4.2	26.7	6.0	3.8	14.1
Haifa . .	12.0	0.0	26.0	2.0	8.0	3.0	27.0	4.0	3.0
Jaffa . .	1.1	2.8	20.9	5.8	15.4	21.9	4.4	1.1	11.5
Gaza . .	4.9	0.5	7.5	3.4	0.8	18.1	11.7	1.1	36.9
El-'Arīsh. .	6.0	6.0	5.0	1.0	14.0	20.0	14.0	10.0	5.0
Inland:									
El-Qareya .	1.8	1.3	9.1	10.2	7.3	13.0	23.8	5.9	17.4
Nazareth. .	9.0	11.0	15.0	10.0	3.0	13.0	16.0	10.0	0.0
Jerusalem .	0.9	1.8	12.0	2.2	1.0	5.3	35.5	6.0	20.0
El-Lātrūn .	3.4	0.6	8.8	13.7	5.4	8.4	15.4	21.6	7.6
Hebron . .	5.9	4.2	6.6	10.0	2.9	3.3	26.0	25.9	0.0
Nekhl . .	1.6	6.0	0.5	0.5	2.6	13.1	59.0	4.0	0.0

THOUSAND OBSERVATIONS PER ANNUM

APRIL

<i>Station.</i>	<i>Direction.</i>								
	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
Coast:									
Beirut . . .	7.3	11.1	4.3	2.8	2.9	29.8	7.1	4.3	12.2
Haifa . . .	15.0	1.0	17.0	2.0	6.0	5.0	30.0	4.0	4.0
Jaffa . . .	1.1	0.5	27.4	6.0	15.4	14.8	3.3	0.0	13.7
Gaza . . .	2.9	0.4	9.8	1.2	0.6	9.6	18.9	2.5	37.2
El-'Arīsh. .	7.0	9.0	7.0	2.0	6.0	20.0	9.0	9.0	12.0
Inland:									
El-Qareya .	1.5	0.8	4.5	17.9	4.2	11.8	24.2	4.8	15.4
Nazareth .	9.0	8.0	15.0	7.0	1.0	8.0	17.0	12.0	0.0
Jerusalem .	1.1	1.5	13.7	2.2	1.1	2.3	31.1	9.4	20.0
El-Lātrūn .	3.2	1.4	7.0	14.1	4.0	5.6	11.3	25.1	10.5
Hebron . .	8.6	3.5	9.1	10.3	3.4	2.5	18.8	25.6	0.5
Nekhl . . .	6.0	8.0	4.2	1.6	8.0	12.1	35.3	4.2	0.0

MAY

Coast:									
Beirut . . .	10.1	12.2	3.4	0.9	2.5	28.5	8.7	6.7	11.7
Haifa . . .	12.0	1.0	11.0	1.0	6.0	5.0	36.0	7.0	5.0
Jaffa . . .	0.0	0.8	17.8	4.7	16.7	21.1	1.4	0.0	22.4
Gaza . . .	5.1	0.0	15.1	2.3	0.4	8.0	24.9	3.0	26.2
El-'Arīsh. .	13.0	12.0	9.0	3.0	8.0	13.0	8.0	9.0	11.0
Inland:									
El-Qareya .	5.3	2.6	6.7	14.0	3.8	4.6	22.6	10.1	21.6
Nazareth .	19.0	8.0	5.0	9.0	2.0	19.0	13.0	11.0	0.0
Jerusalem .	3.8	1.7	10.0	1.6	0.8	2.6	31.5	15.7	17.3
El-Lātrūn .	3.3	1.5	3.7	12.0	4.3	2.7	7.5	35.5	14.3
Hebron . .	9.8	3.4	5.9	8.1	5.0	5.4	13.7	33.2	0.1
Nekhl . . .	2.6	8.4	6.0	1.6	0.5	13.1	48.3	6.3	0.0

JUNE

Coast:									
Beirut . . .	6.1	6.1	1.0	0.1	2.2	41.3	11.7	4.1	9.5
Haifa . . .	8.0	0.0	3.0	1.0	4.0	7.0	50.0	6.0	4.0
Jaffa . . .	0.0	0.0	4.1	8.8	27.3	21.3	2.2	0.6	17.9
Gaza . . .	4.1	0.0	13.9	0.6	1.1	1.1	25.0	1.6	34.4
El-'Arīsh. .	20.0	5.0	2.0	1.0	4.0	11.0	8.0	17.0	14.0
Inland:									
El-Qareya .	6.3	2.8	2.4	2.5	2.8	1.1	25.6	12.6	30.6
Nazareth .	11.0	5.0	3.0	2.0	0.0	20.0	22.0	21.0	0.0
Jerusalem .	2.9	1.1	2.3	0.3	0.2	0.6	40.3	22.1	13.4
El-Lātrūn .	2.5	0.3	1.0	9.6	4.4	2.2	7.5	42.0	12.5
Hebron . .	9.6	2.5	2.3	1.7	1.4	1.8	11.8	51.0	0.1
Nekhl . . .	5.3	11.0	2.6	1.6	1.6	10.5	42.1	4.2	0.0

SYRIA

F

JULY

<i>Station.</i>	<i>Direction.</i>								
	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
Coast:									
Beirut . .	3.7	1.4	0.3	0.1	3.7	50.9	13.5	2.8	8.3
Haifa . .	1.0	0.0	1.0	1.0	9.0	16.0	53.0	2.0	3.0
Jaffa . .	0.0	0.7	0.7	8.2	26.0	32.1	2.1	6.2	8.9
Gaza . .	1.4	0.5	14.2	0.4	0.4	4.2	24.6	0.9	38.4
El-'Arish .	14.0	2.0	*	*	2.0	25.0	14.0	15.0	11.0
Inland:									
El-Qareya .	5.9	0.7	0.6	1.0	2.9	1.8	17.4	15.0	35.3
Nazareth .	6.0	0.0	2.0	0.0	0.0	33.0	26.0	15.0	0.0
Jerusalem .	1.6	0.0	0.4	0.0	0.1	0.8	43.8	25.9	12.0
El-Lâtrûn .	0.9	0.1	0.9	11.8	4.4	2.9	9.7	41.6	12.5
Hebron . .	8.7	1.5	1.0	0.3	0.7	1.4	13.9	57.3	0.1
Nekhl . .	7.0	9.0	4.2	1.6	0.0	8.0	53.1	4.2	0.0

AUGUST

Coast:									
Beirut . .	5.0	3.3	0.6	0.1	4.5	38.2	16.1	5.9	11.0
Haifa . .	4.0	0.0	2.0	1.0	7.0	12.0	50.0	5.0	4.0
Jaffa . .	0.0	0.0	0.8	13.8	40.2	17.1	0.8	0.0	12.1
Gaza . .	3.0	0.0	15.7	0.3	1.1	1.6	20.8	7.0	35.4
El-'Arish .	11.0	1.0	*	0.0	3.0	20.0	15.0	17.0	16.0
Inland:									
El-Qareya .	6.3	1.1	0.6	2.5	4.1	1.0	14.4	13.7	36.5
Nazareth .	9.0	1.0	0.0	1.0	0.0	18.0	33.0	22.0	0.0
Jerusalem .	1.9	0.4	0.4	0.1	0.1	0.5	37.3	30.0	13.8
El-Lâtrûn .	5.2	0.1	1.8	15.3	1.8	0.8	7.2	41.8	10.8
Hebron . .	8.7	1.6	0.3	1.6	1.3	0.9	8.2	61.6	0.7
Nekhl . .	5.0	12.1	1.6	0.5	0.0	12.1	49.4	6.3	0.0

SEPTEMBER

Coast:									
Beirut . .	13.5	10.0	1.4	0.3	2.6	24.6	12.3	7.9	10.3
Haifa . .	17.0	1.0	7.0	1.0	2.0	4.0	37.0	8.0	6.0
Jaffa . .	0.0	1.4	2.7	4.8	19.2	18.6	8.0	0.0	27.5
Gaza . .	1.6	0.0	20.5	0.3	0.0	2.4	22.3	3.2	31.6
El-'Arish .	11.0	4.0	1.0	*	4.0	21.0	10.0	19.0	18.0
Inland:									
El-Qareya .	4.6	4.6	2.9	1.8	3.8	8.0	15.3	7.0	30.4
Nazareth .	18.0	5.0	5.0	2.0	1.0	12.0	19.0	19.0	0.0
Jerusalem .	4.2	1.6	4.0	1.0	0.0	1.4	28.7	24.6	16.6
El-Lâtrûn .	7.9	1.1	3.7	12.9	1.7	0.9	4.7	38.7	10.6
Hebron . .	13.6	2.1	2.3	2.6	1.6	1.0	9.5	49.4	0.2
Nekhl . .	10.5	24.0	2.6	0.5	0.0	6.3	31.0	4.2	0.0

OCTOBER

<i>Station.</i>	<i>Direction.</i>								
	N.	NE.	E.	SE.	S.	SW.	W.	NW.	C.
Coast:									
Beirut . .	17·0	16·5	3·8	2·2	3·6	16·7	5·3	4·3	15·3
Haifa . .	17·0	1·0	20·0	2·0	3·0	2·0	26·0	8·0	5·0
Jaffa . .	0·0	1·4	15·5	9·6	17·2	15·1	2·1	0·0	24·0
Gaza . .	2·5	0·4	19·4	4·3	0·7	2·0	21·7	4·2	29·8
El-'Arīsh .	15·0	8·0	3·0	1·0	12·0	16·0	14·0	12·0	12·0
Inland:									
El-Qareya .	2·1	0·8	10·8	10·4	5·6	7·0	19·5	5·6	17·2
Nazareth .	25·0	17·0	11·0	6·0	2·0	3·0	5·0	11·0	0·0
Jerusalem .	2·5	2·6	15·8	1·3	0·6	1·6	22·7	11·0	26·2
El-Lātrūn .	8·7	1·3	9·4	13·2	2·9	3·4	6·6	30·1	9·4
Hebron . .	12·0	7·1	6·5	6·6	1·3	2·3	11·9	36·4	0·9
Nekhl . .	6·3	20·5	1·6	2·6	0·0	12·1	42·1	2·1	0·0

NOVEMBER

Coast:									
Beirut . .	9·1	9·8	6·7	8·5	7·3	15·6	6·4	27·0	15·6
Haifa . .	13·0	0·0	29·0	2·0	6·0	4·0	19·0	4·0	5·0
Jaffa . .	4·1	6·8	15·9	5·7	11·9	14·1	13·6	1·9	18·2
Gaza . .	1·3	0·7	13·9	3·9	0·7	8·6	17·8	0·6	34·4
El-'Arīsh .	5·0	10·0	3·0	1·0	12·0	28·0	11·0	6·0	11·0
Inland:									
El-Qareya .	4·6	0·4	9·5	8·7	7·8	15·3	13·2	2·9	16·2
Nazareth .	10·0	24·0	19·0	7·0	5·0	6·0	5·0	7·0	0·0
Jerusalem .	2·0	1·5	18·8	2·9	0·5	3·3	23·7	4·1	24·5
El-Lātrūn .	4·3	1·1	13·2	12·3	4·3	8·2	9·8	16·9	11·9
Hebron . .	9·6	7·6	8·9	6·5	2·1	2·9	16·2	28·1	0·3
Nekhl . .	2·6	2·6	3·1	2·6	0·0	13·6	47·3	6·3	0·0

DECEMBER

Coast:									
Beirut . .	6·7	7·5	10·1	13·5	10·2	17·0	5·0	2·6	12·1
Haifa . .	5·0	1·0	45·0	3·0	7·0	4·0	13·0	4·0	3·0
Jaffa . .	2·8	7·5	21·0	6·3	12·3	14·0	0·8	0·8	19·4
Gaza . .	1·1	0·2	11·6	2·2	2·2	19·4	9·9	0·8	37·7
El-'Arīsh .	3·0	5·0	4·0	1·0	14·0	35·0	14·0	4·0	11·0
Inland:									
El-Qareya .	5·9	1·1	13·4	5·5	5·4	14·7	15·3	2·6	17·9
Nazareth .	3·0	16·0	25·0	18·0	6·0	13·0	2·0	5·0	0·0
Jerusalem .	0·7	0·7	21·1	3·0	0·7	6·0	27·0	2·1	22·8
El-Lātrūn .	3·1	1·9	18·5	12·9	3·4	16·3	8·6	11·6	8·6
Hebron . .	6·3	7·5	10·3	9·4	2·5	4·6	21·0	23·4	0·0
Nekhl . .	2·6	4·2	1·6	1·6	0·0	15·0	54·2	8·0	0·0

TABLE XXIV. (a) STRENGTH OF WIND AT EL-QAREYA FOR THE YEARS 1901-5 INCLUSIVE (BEAUFORT SCALE 0-12) AT 7.30 hr., 13 hr., and 19 hr.

	N.	NE.	E.	SE.	S.	SW.	W.	NW.	No. of observations of Calm.	Mean strength, including Calm.	Remarks.
JANUARY											
At 7.30 hr. .	2.3	2.5	5.0	5.0	2.9	2.5	3.4	2.0	8.6	2.6	
„ 13 „ .	2.3	2.0	5.7	4.7	2.7	3.0	3.3	2.2	9.2	2.5	
„ 19 „ .	2.0	4.0	6.7	5.6	3.0	2.5	4.0	2.9	15.6	2.3	
FEBRUARY											
At 7.30 hr. .	2.0	2.0	6.2	4.3	3.0	3.2	2.4	2.4	8.0	2.6	
„ 13 „ .	2.3	2.4	4.9	4.6	2.2	3.1	2.9	2.4	6.6	2.3	
„ 19 „ .	2.5	0.0	5.5	4.7	3.0	4.0	2.7	2.6	12.2	2.0	
MARCH											
At 7.30 hr. .	2.7	2.0	5.2	5.1	3.2	3.8	4.2	2.8	7.2	3.0	
„ 13 „ .	2.8	2.5	5.4	4.8	3.1	3.1	3.7	3.1	3.6	3.0	
„ 19 „ .	3.0	0.0	5.0	4.2	3.0	3.6	3.1	3.1	10.0	2.3	
APRIL											
At 7.30 hr. .	2.4	2.4	5.2	5.0	3.4	4.0	3.6	2.6	8.0	3.0	
„ 13 „ .	3.2	3.2	5.0	4.2	3.3	2.8	4.0	2.9	4.6	3.2	
„ 19 „ .	3.1	2.0	4.8	3.9	3.0	3.1	3.8	2.6	9.4	2.4	
MAY											
At 7.30 hr. .	2.3	2.9	4.0	3.7	3.2	4.2	3.4	2.2	8.0	2.4	
„ 13 „ .	3.5	3.5	3.0	3.5	2.7	5.5	3.7	3.7	3.2	3.2	
„ 19 „ .	2.0	2.7	2.8	3.3	2.1	4.4	2.9	2.5	13.2	1.6	
JUNE											
At 7.30 hr. .	2.2	2.9	3.3	3.6	2.3	4.0	3.9	2.6	16.2	1.2	1901 Records Missing
„ 13 „ .	3.6	4.7	0.0	2.0	2.3	2.7	3.2	3.1	2.0	3.0	
„ 19 „ .	3.0	2.7	4.0	4.0	2.0	2.0	3.5	2.0	20.0	0.9	

	N.	NE.	E.	SE.	S.	SW.	W.	NW.	No. of observa- tions of Calm.	Mean strength, including Calms.	Remarks.
JULY											
At 7-30 hr. .	2.0	2.0	4.0	4.0	2.8	6.0	2.8	2.4	20.4	1.0	1901 Records Missing
„ 13 „ .	3.9	3.3	0.0	0.0	3.0	0.0	3.7	3.1	2.8	3.0	
„ 19 „ .	2.7	0.0	0.0	2.0	2.0	2.0	2.4	2.0	22.7	0.6	
AUGUST											
At 7-30 hr. .	3.0	0.0	2.7	4.0	4.0	2.0	2.5	2.0	25.2	0.6	1901 Records Missing
„ 13 „ .	3.4	4.0	0.0	0.0	0.0	4.8	2.9	2.6	1.5	2.7	
„ 19 „ .	2.0	4.0	0.0	2.7	0.0	4.0	2.0	2.7	25.8	0.4	
SEPTEMBER											
At 7-30 hr. .	3.1	4.0	4.8	5.0	2.3	2.7	3.0	2.8	17.5	1.5	
„ 13 „ .	3.2	3.1	3.6	3.0	2.0	2.7	3.3	2.6	3.0	2.6	
„ 19 „ .	2.0	2.0	6.0	2.8	2.5	3.0	2.5	2.0	18.0	1.1	
OCTOBER											
At 7-30 hr. .	2.7	0.0	3.9	4.0	2.9	3.6	3.1	2.0	10.0	2.4	
„ 13 „ .	3.1	4.0	5.3	5.1	2.8	3.4	3.0	3.6	5.2	2.8	
„ 19 „ .	2.4	0.0	3.8	3.7	2.6	3.6	2.9	3.0	12.2	2.0	
NOVEMBER											
At 7-30 hr. .	2.4	4.0	4.0	5.5	3.6	3.4	3.9	4.0	9.0	2.7	
„ 13 „ .	2.3	2.0	4.0	4.9	3.3	3.0	3.8	3.3	7.4	2.7	
„ 19 „ .	0.0	0.0	3.6	4.8	3.9	3.2	3.5	3.3	13.2	2.0	
DECEMBER											
At 7-30 hr. .	2.9	0.0	4.4	4.8	2.5	5.4	3.8	2.5	8.8	2.7	
„ 13 „ .	2.5	4.0	4.7	4.4	2.5	4.0	3.7	2.8	9.8	2.4	
„ 19 „ .	2.4	4.0	5.0	4.0	3.5	3.3	4.0	2.7	11.8	2.4	

(b) STRENGTH OF WIND AT EL-LĀTRŪN FOR THE FIVE YEARS 1908-12 INCLUSIVE (BEAUFORT SCALE 0-12) AT 6 hr., 12 hr., and 18 hr.

(The figures in brackets represent solitary winds of abnormal strength.)

	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.
JANUARY									
At 6 hr.	—	—	4.0	4.0	5.0	5.2	3.0	4.0	3.6
„ 12 „	4.0	4.0	2.0	4.0	5.6	5.4	4.0	—	5.2
„ 18 „	2.2	—	2.0	—	3.8	6.0	3.0	2.0	4.0
FEBRUARY									
At 6 hr.	—	—	—	2.0	4.4	4.2	3.6	2.8	3.4
„ 12 „	3.2	—	2.2	2.0	6.0	5.2	6.0	—	3.6
„ 18 „	3.2	2.0	2.0	—	5.0	6.0	3.4	3.4	3.4
MARCH									
At 6 hr.	—	—	—	2.0	6.0	4.3	3.0	3.2	3.0
„ 12 „	2.2	3.0	2.0	4.0	6.8	[8.0]	7.5	6.4	3.4
„ 18 „	2.0	2.0	2.0	—	4.4	—	6.0	4.0	—
APRIL									
At 6 hr.	—	—	—	—	6.0	4.2	2.8	3.6	2.6
„ 12 „	2.0	4.0	2.0	4.0	5.4	6.4	4.6	4.6	4.4
„ 18 „	2.0	2.0	—	3.0	5.4	5.0	4.0	4.0	—
MAY									
At 6 hr.	2.0	—	—	—	2.2	4.8	3.0	4.0	2.8
„ 12 „	4.0	4.0	3.4	4.0	4.0	4.0	5.6	4.6	4.0
„ 18 „	2.0	2.0	—	[6.0]	2.0	3.0	4.0	4.0	—
JUNE									
At 6 hr.	—	—	—	—	4.0	2.0	2.2	2.6	2.6
„ 12 „	5.4	2.0	—	—	—	—	—	4.6	—
„ 18 „	3.4	2.0	—	—	—	—	—	—	—

SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Mean No. of observa- tions of Calm.	Mean strength, including Calms.	
6.4	4.6	4.8	5.4	4.6	2.0	5.0	2.6	3.96	At 6 hr.
4.0	4.8	6.0	3.6	5.4	3.4	2.0	2.4	4.12	„ 12 „
—	3.0	4.8	3.2	4.0	2.3	2.0	7.0	2.44	„ 18 „
5.4	4.2	5.6	6.0	7.0	—	2.0	2.4	3.76	„ 6 „
[6.0]	5.4	6.4	5.0	4.6	4.0	2.0	1.6	4.72	„ 12 „
—	4.4	6.6	3.8	3.8	2.1	2.0	7.0	2.68	„ 18 „
6.0	4.6	4.2	4.0	3.4	2.0	—	3.2	3.56	„ 6 „
4.0	5.6	6.0	5.0	4.2	3.8	3.4	1.4	4.60	„ 12 „
6.0	5.0	5.4	3.6	4.0	2.2	2.2	4.0	2.70	„ 18 „
[6.0]	4.4	4.0	3.4	—	3.0	—	7.6	2.76	„ 6 „
5.6	4.6	5.4	5.0	6.0	4.2	4.0	1.0	4.52	„ 12 „
—	4.8	5.0	3.6	2.2	2.3	2.0	4.6	2.40	„ 18 „
2.6	5.6	6.0	4.0	4.0	2.0	—	10.4	2.24	„ 6 „
4.0	4.0	5.6	5.4	5.2	4.4	4.6	0.2	4.60	„ 12 „
—	[6.0]	—	3.2	2.0	2.4	2.0	6.4	1.92	„ 18 „
2.6	3.4	4.0	4.0	—	—	—	12.6	1.44	„ 6 „
4.0	5.0	4.4	5.8	5.8	5.0	4.8	0.4	5.04	„ 12 „
—	[6.0]	4.0	4.0	4.8	2.6	3.0	4.0	2.48	„ 18 „

	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.
JULY									
At 6 hr. .	—	—	—	—	2·2	2·6	2·4	2·2	2·6
„ 12 „ .	4·0	—	—	—	—	—	—	—	—
„ 18 „ .	—	1·0	—	—	—	—	—	—	—
AUGUST									
At 6 hr. .	—	—	—	—	2·2	2·6	2·2	2·0	3·4
„ 12 „ .	4·0	—	4·0	—	—	—	—	—	—
„ 18 „ .	3·6	—	—	—	—	—	—	—	—
SEPTEMBER									
At 6 hr. .	—	—	—	—	2·6	2·6	2·2	2·0	4·0
„ 12 „ .	4·0	3·4	2·2	—	[6·0]	—	—	—	—
„ 18 „ .	2·6	—	—	—	—	—	—	—	—
OCTOBER									
At 6 hr. .	2·0	—	—	4·0	3·6	3·6	2·4	2·6	2·6
„ 12 „ .	4·2	—	3·4	5·0	6·0	8·0	6·0	—	5·0
„ 18 „ .	3·0	2·0	4·0	5·0	4·0	—	2·0	—	—
NOVEMBER									
At 6 hr. .	—	—	2·0	[6·0]	5·2	4·2	3·2	3·4	3·4
„ 12 „ .	3·8	4·0	2·6	6·0	6·8	5·8	5·4	2·0	4·0
„ 18 „ .	2·4	—	—	2·0	4·0	4·0	4·0	2·0	4·0
DECEMBER									
At 6 hr. .	—	—	—	[8·0]	5·2	—	2·8	3·0	3·0
„ 12 „ .	2·8	[6·0]	2·8	2·0	6·2	4·4	5·4	—	4·0
„ 18 „ .	2·0	2·0	4·0	3·0	4·8	6·0	4·6	—	—

SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	<i>Mean No. of observa- tions of Calm.</i>	<i>Mean strength, including Calms.</i>		
2.6	3.8	[8.0]	—	—	2.0	—	12.2	1.60	At	6 hr.
3.0	4.8	6.0	5.6	5.4	5.0	4.8	0.0	5.24	„	12 „
—	4.0	—	3.2	—	2.6	2.0	3.4	2.40	„	18 „
—	—	—	—	—	—	—	12.0	1.44	„	6 „
—	—	4.8	5.0	6.0	4.6	5.8	0.0	4.80	„	12 „
—	—	—	5.0	4.0	2.6	3.0	2.8	2.60	„	18 „
—	[6.0]	[6.0]	—	—	—	—	14.0	1.32	„	6 „
—	3.0	5.4	5.4	4.0	4.6	5.2	0.4	4.68	„	12 „
—	[6.0]	—	3.4	—	2.8	3.2	2.0	2.72	„	18 „
3.0	5.0	[6.0]	—	—	—	—	6.6	2.40	„	6 „
4.0	5.8	5.8	5.0	4.0	4.6	5.5	1.2	4.80	„	12 „
—	4.0	—	4.8	6.0	8.0	4.0	4.8	2.20	„	18 „
4.0	4.0	4.0	[6.0]	—	4.0	—	6.2	3.00	„	6 „
4.0	4.0	4.8	4.6	[6.0]	4.0	4.0	1.4	4.32	„	12 „
3.0	2.4	4.4	3.6	—	2.4	—	8.4	2.16	„	18 „
[6.0]	5.0	4.0	—	—	—	—	2.0	4.28	„	6 „
6.0	5.4	5.6	4.2	5.4	3.0	[6.0]	1.6	4.60	„	12 „
—	3.6	—	3.2	—	2.1	—	6.0	2.84	„	18 „

(c) THE AVERAGE ESTIMATED STRENGTH OF WIND (BEAUFORT SCALE 0—12) AT SARONA FOR THE 10 YEARS 1880—89

	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Mean No. of days of Calm.	Mean No. of days of Wind Beaufort Scale 4 or more.
January .	2.4	1.6	1.4	1.4	2.4	3.8	3.4	3.6	6	3.8
February .	2.2	1.6	1.8	1.2	2.6	3.0	3.8	3.0	8	4.8
March .	0.8	1.0	2.0	2.2	2.0	2.6	3.4	1.6	9	5.3
April .	2.2	1.2	2.6	2.0	2.2	3.0	2.8	1.2	9	4.9
May .	2.4	1.2	2.8	1.0	1.6	2.2	1.4	1.2	5	2.0
June .	1.4	1.0	1.0	1.0	1.6	2.0	1.6	1.6	4	1.9
July .	—	—	1.0	1.0	1.0	1.8	1.4	1.4	2	1.1
August .	1.0	—	1.0	1.0	1.4	1.8	1.4	1.2	5	1.2
September .	1.6	1.8	—	1.0	1.6	1.6	1.4	1.2	8	1.4
October .	1.4	1.4	3.6	2.0	1.8	1.8	2.2	1.4	13	2.0
November .	1.6	1.4	3.2	1.2	2.2	3.0	2.2	1.2	11	3.0
December .	2.2	1.2	1.4	1.4	2.4	3.0	4.6	1.0	9	3.5
									Total Calms in year	Total
Mean strength .	1.8	1.4	2.4	1.4	2.2	2.2	2.0	1.6	89	34.9

NO. OF STRONG WINDS PER ANNUM OF

Beaufort scale .	4.0	5.0	6.0	7.0	8.0	9.0	10.0	12.0	
Mean .	20.9	3.1	5.9	0.5	3.1	0.6	0.6	0.2	Total 34.9
Max. in year .	30	8	10	4	6	3	3	1	48
Min. in year .	9	0	2	0	0	0	0	0	20

(d) WIND STRENGTH AT TIBERIAS 1910 (BEAUFORT SCALE)

	N.	E.	S.	W.		N.	E.	S.	W.
January .	1.5	2.0	0.0	1.3	July .	0.0	0.0	0.0	2.3
February .	0.0	2.3	0.0	1.0	August .	0.0	0.0	0.0	2.5
March .	1.5	0.0	2.0	2.0	September .	0.0	0.0	0.0	2.0
April .	0.0	0.0	0.0	2.3	October .	0.0	0.0	1.0	1.5
May .	0.0	0.0	0.0	2.3	November .	0.0	2.7	0.0	2.2
June .	0.0	0.0	0.0	2.3	December .	0.0	2.4	1.0	0.0
Mean of Year .						1.5	2.4	1.6	2.2

(e) WIND STRENGTH AT MELHAMĪYEH, MORNING, AFTERNOON
AND EVENING, 1905-6 (BEAUFORT SCALE)

					<i>Morn.</i>	<i>Aft.</i>	<i>Even.</i>	<i>Mean.</i>	<i>Max.</i>
January	.	.	.	.	1.6	2.2	1.2	1.7	6.0
February	.	.	.	.	1.6	2.5	1.6	1.9	8.4
March	.	.	.	.	1.3	2.0	1.3	1.6	6.0
April	.	.	.	.	1.2	1.8	1.1	1.3	6.0
May	.	.	.	.	1.2	2.5	1.1	1.7	6.0
June	.	.	.	.	1.2	3.8	1.2	2.0	8.4
July	.	.	.	.	1.1	4.3	0.5	1.9	6.0
August	.	.	.	.	0.8	2.6	0.5	1.3	6.0
September	.	.	.	.	} No records.				
October					
November	.	.	.	.	0.5	0.7	0.4	0.4	6.0
December	.	.	.	.	2.0	2.2	2.3	2.2	8.4

(f) WIND STRENGTH AT JERICHO, 1899, 1900 (BEAUFORT SCALE)

	<i>7 hr.</i>	<i>13 hr.</i>	<i>21 hr.</i>	<i>Mean.</i>		<i>7 hr.</i>	<i>13 hr.</i>	<i>21 hr.</i>	<i>Mean.</i>
January	1.2	3.0	1.3	1.8	May	2.0	3.2	2.6	2.6
February	1.7	2.6	1.8	2.0	June	1.8	4.4	2.5	2.9
March	No record				July	1.0	2.9	1.6	1.8
April	1.4	3.6	2.4	2.5	August-December. No records.				

(g) MEAN WIND STRENGTH AT 'AIN ET-TĀBGHAH (BEAUFORT SCALE)
at 7 hr., 13 hr., and 21 hr., 3-4 years between 1909 and 1915

	<i>7 hr.</i>	<i>13 hr.</i>	<i>21 hr.</i>	<i>Days of Storm.</i>		<i>7 hr.</i>	<i>13 hr.</i>	<i>21 hr.</i>	<i>Days of Storm.</i>
January	2.0	1.9	1.8	0.5	July	1.2	4.1	2.8	1.7
February	1.6	2.0	2.3	1.2	August	0.7	3.1	2.6	0.3
March	1.1	2.6	1.5	0.5	September	0.8	2.2	1.8	0.2
April	1.0	2.6	1.8	1.0	October	0.6	1.4	1.8	0.0
May	1.2	2.8	1.6	0.8	November	1.0	1.3	1.5	0.8
June	1.2	3.2	2.6	1.3	December	1.8	2.0	1.7	1.0

TABLE XXV. LATITUDE, LONGITUDE, AND ALTITUDE OF METEOROLOGICAL STATIONS

					Latitude N.	Longitude E.	Alt.
Coast:							ft.
Adana					37 15	35 21	79
Beirut					33 54	35 28	115
Haifa					32 48	34 59	33
Jaffa					32 27	34 45	98
Sarona					32 5	34 47	66
Gaza					31 30	34 27	66
El-'Arish					31 7	33 46	62
Inland:							
'Aintāb					37 4	37 35	{ 3,200
El-Qareya					33 49	35 40	{ 2,755
Qsāra					33 49	35 52	3,330
Damascus					33 33	36 22	3,030
'Ain et-Tābghah					32 52	35 32	2,306
Tiberias					32 48	35 34	— 682
Nazareth					32 42	35 17	— 653
Melhamiyeh					32 39	35 33	1,608
Wilhelma					32 3	34 50	— 770
Jericho					31 52	35 27	128
El-Lātrūn					31 50	35 0	— 879
Qasr Hajleh					31 50 (?)	35 30 (?)	656
Jerusalem					31 47	35 13	— 984
Bethlehem					31 42	35 12	2,200
Hebron					31 31	35 8	2,342
Nekhl					29 54	33 45	2,900
							1,300

KEY TO REFERENCES AND PERIODS

Station.		Table I Mean temperature.	Table II Mean daily minimum temperature.	Table III Mean daily maximum temperature.	Table IV Mean monthly minimum temperature.	Table V Mean monthly maximum temperature.	Table VI Monthly range of temperature.	Table VII Absolute minimum temperature.	Table VIII Absolute maximum temperature.	Table IX Mean monthly rainfall.	Table X Maximum rainfall in month.	Table XI Minimum rainfall in month.	Table XII Maximum rainfall in day.	Table XIII Number of rain days.	Table XIV Mean relative humidity.	Table XV Relative humidity : morning, afternoon, evening.	Table XVI Cloud.	Tables XVII-XXI Days with hail, thunder- storms, fog, storm, snow.	Table XXII Winds, per cent.	Table XXII Wind directions per 1,000 observations per annum.
Adana .	<i>Ann. du Bur. Cent. Mët. de France</i> ; Hann, <i>Hand- buch der Klimatologie</i> .	1907-12, less 1910	1907-12, less 1910	1907-12, less 1910	1907-12, less 1910	1907-12, less 1910	1907-12, less 1910	1907-12, less 1910	1907-12, less 1910	1907-12, less 1910	1907-12, less 1910	1907-12, less 1910	—	1907-12, less 1910	—	—	1908 and 1909	—	—	—
Beirut .	Kostlivy, <i>Klimatische Verhältnisse von Beirut</i> (Prague, 1905); <i>Mediterranean Pilot</i> , vol. v.	1876-1900	1876-1905	1876-1900	1876-1900	1876-1900	1876-1900	1876-1905	1876-1905	1876-1905	1876-1900	1876-1900	1876-1905	1876-1905	1876-1905	1876-1900	1876-1900	1876-1900	1884-1908	1884-1908
Haifa .	Exner (see below); Heinrich Hilderscheid (see below); <i>Austrian Annals</i> (Wien), 1904 (p. 90).	1896-1905	—	—	1896-1905	1896-1905	1896-1905	—	—	1884-1905	1884-1905	1884-1905	1896-1904	1896-1905	1896-1905	1896-1905	1896-1905	—	1897-04	1897-1904
Sarona .	Exner, 'Zum Klima von Palästina,' <i>Zeitschrift des Deutschen Palästina-Vereins</i> , vol. xxxiii, Leipzig (K.P.); H. Hilderscheid, 'Die Nieder- schlagsverhältnisse Palästinas in alter und neuer Zeit,' <i>Z.D.P.V.</i> , vol. xxv (N.P.); Quarterly Statement, Palestine Exploration Fund, Jas. Glaisher (Q.S.P.E.F.).	1896-1905	1880-89	1880-89	1880-89, 1896-1905	1880-89, 1896-1905	1880-89, 1896-1905	1880-89	1880-89	1880-89,	1880-89	1880-89	1880-89	1880-89	1880-89, 1896-1905	1896-1905	1896-1905	1880-89, 1896-1905	1880-89	—
Jaffa .	<i>Ann. du Bur. Cent. Mët. de France</i> ; Q.S.P.E.F. (Rain, 1913, p. 45).	1907-12	1907-12	1907-12	1907-12	1907-12	1907-12	1907-12	1907-12	1902-12	1902-12	1907-12	—	1907-12	—	—	1907-12	—	1907-12	1907-12
Gaza .	Exner (see above)	1896-1905	—	—	1896-1905	1896-1905	1896-1905	—	—	1896-1905	—	—	—	1896-1905	1896-1905	1896-1905	1896-1905	1896-1905	1900-04	1900-04
El-'Arish .	Met. Report, Survey Dept., Ministry of Finance, Egypt.	1907-12	1907-12	1907-12	1907-12	1907-12	1907-12	1907-12	1907-12	1907-12	1907-12	1907-12	1907-12	1907-12	1907-12	1907-12	1907-12	—	1907-12	1907-12
Damascus .	<i>Q. J. Scot. Met. Soc.</i> , vol. ii, p. 228; Buchan, Report on Atmos. Circulation, 'Challenger', Report; C. Diener, <i>Libanon</i> .	1843-44, 1867-68, 1882, 1884-85	1867-68, 1884-85	1867-68, 1884-85	—	—	—	1867-68, 1884-85	1867-68, 1884-85	1867, 1884-85	—	—	—	1884-85	1867-68	—	—	1884-85	—	—
'Aintāb .	J. Hann, <i>Handbuch der Klimatologie</i> , vol. iii.	—	—	—	—	—	—	—	—	32 years	—	—	—	—	—	—	—	—	—	—
El-Qareya .	<i>Ann. du Bur. Cent. Mët. de France</i> ; Herbert Krugler, <i>Die Windverhältnisse im östlichen Mittelmeer</i> .	1901-10	1901-10	1901-10	1901-10	1901-10	1901-10	1901-10	1901-10	1900-10	1900-10	1900-10	1901-05	1900-10	1900-10	1900-10	1900-10	1901-05	1901-10	1901-10
Qsāra .	<i>Ann. du Bur. Cent. Mët. de France</i> .	1910-12	1910-12	1910-12	1910-12	1910-12	1910-12	1910-12	1910-12	1910-12	1910-12	1910-12	1912	1910-12	1910-12	1910-12	1910-12	—	1911-12	—
'Ain et-Tābghah	<i>Zeitschrift des Deutschen Palästina-Vereins</i> , vol. for 1910, &c.	1909-12, 1915	—	—	1909-12, 1915	1909-12, 1915	1909-12, 1915	1909-12, 1915	1909-12, 1915	1909-12, 1914-15	1909-12, 1914-15	1909-12, 1914-15	1909-12, 1914-15	1909-12, 1914-15	—	—	1909-12, 1915	1909-12, 1915	1909-12, 1915	—
Tiberias .	Quarterly Statement, Pal. Exploration Fund; 'Klima von Palästina' (K.P.)	1890-1905	1890-1905	1890-1905	1890-1905	1890-1905	1890-1905	1890-99	1890-99	1890-99	1890-99	1890-99	1890-99	1890-99	1896-1905	1896-1905	—	—	—	—
Nazareth .	'Klima von Palästina' (K.P.)	1891-1906	1891-1906	1891-1906	1891-1906	1891-1906	1891-1906	1891-1906	1891-1906	1891-1907	1891-1907	1891-1907	—	1891-1907	—	—	1891-1904	—	1891-1906	1891-1906
Melhamiyeh .	'Klima von Palästina' (K.P.); Blanckenhorn (see below).	1896-1905	—	—	1896-1905	1896-1905	1896-1905	1905-08	1905-08	1896-1905	—	—	—	1896-1905	—	—	1-2 years	—	1905-06	—
El-Lātrūn .	<i>Ann. du Bur. Cent. Mët. de France</i> .	1901	1901-12	1901-12	1901-12, less 1903- 04	1901-12, less 1903- 04	1901-12, less 1903- 04	1901-12, less 1903- 04	1901-12, less 1903- 04	1901-12	1901-12	1901-12	1906-12	1901-12	1903-12	1903-12	1901-12	1906-12	1905-12	1905-12
Jerusalem .	'Klima von Palästina' (K.P.); 'Niederschlags- verhält. Pal.' (N.P.); J. Glaisher, Q.S.P.E.F., 1898; Krugler.	1864- 1882	1882-1901	1882-1901	1882-1901	1882-1901	1882-1901	1864-71, 1882-96	1864-71, 1882-96	1861-1907	1860-99	1860-99	1884-99	1861-1907	1896-1905	1896-1905	—	1896-1905	1895-1908	1895-1908
Hebron .	<i>Q. J. Scot. Met. Soc.</i> , vols. xii-xvii; Krugler; 'Klima von Palästina' (K.P.)	1890	1896-1914	1896-1914	1896-1914	1896-1914	1896-1914	1896-1914	1896-1914	1896-1914	1896-1914	1896-1914	1896-1914	1896-1914	1896-1914	—	—	—	1896-1914	1899-1912, less 1903-08
Nekhl .	Met. Report, Survey Dept., Ministry of Finance, Egypt.	1908-	1908-12	1908-12	1908-12	1908-12	1908-12	1908-12	1908-12	1907-12	1907-12	1907-12	1907-12	1907-12	—	—	—	—	1907-12	1907-12
Jericho	Max Blanckenhorn, 'Stud. üb. d. Klima des Jordanthals,' (<i>Z.D.P.V.</i> , vol. xxxii); Exner,	1896	—	—	—	—	—	1899-1900	1899-1900	—	—	—	—	—	—	—	1899-1900	—	1899-1900	—
Qasr Hajleh	'Klima von Palästina' (K.P.)	1906	1906	1906	—	—	—	1906	1906	1906	—	—	1906	1906	—	—	—	—	—	—

CHAPTER III

MINERALS, FLORA, AND FAUNA

MINERALS

IN general, it may be said that Syria is poorer in minerals than in other resources, but it is difficult to say positively whether this is due to an actual lack of minerals or to insufficient exploration. Comparatively few mines have so far been discovered and; except perhaps the workers in iron, few of the people have ever depended on mining for their livelihood.

Iron.—The Lebanon in ancient and modern times has been worked for iron. The best known working of modern times is that of Majerba in Wādi Sannīn, west of Jebel Sannīn in northern Lebanon, where the ore is rich and the iron good. In south Lebanon, the amount of iron obtained is insignificant and unprofitable. In southern Syria there is no good evidence of iron except east of the Jordan at Maghāret el-Wardeh, SSE. of Rājib (Southern ‘Ajlūn), where a hill has been tunnelled for it; see further, p. 601. *Manganese* is frequently found in combination with iron. Post says (1890): ‘At present the production of iron in Syria is probably smaller than at any previous period, owing largely to the disappearance of the forests which furnished the charcoal used in smelting.’

Coal.—In the southern Amanus there is anthracite. Such coal as there is in Lebanon is mostly a tar coal, some of it so mixed with sulphur ore that it cannot be utilized and transport is another difficulty. The principal workings of lignite are at Heitūreh near Jezzīn in south Lebanon, where there is a comparatively rich mine. The lignite is here found in strata varying from 40–120 cm. in thickness, and it is reported that, during the war, 50–100 tons

were extracted daily from the mines of south Lebanon and 30-40 tons from others in north Lebanon. In the lignite and tar-coal of Lebanon a yellowish fossil resin, like amber, is found. No coal has yet been discovered in Palestine.

Bitumen is found in the Dead Sea area, (a) in chalk formations, (b) in the alluvial and diluvial soil, (c) in the sea itself ; but it has not yet been systematically exploited. The chief localities are Wādi Sebbeh south-west of Masada, and Wādi Mahawat west of Jebel Usdum ; the latter place is the most important, and here the deposits could easily be worked. The Bedouin regularly collect the bitumen from the Dead Sea shores (about 2,000 kilograms per annum), which is of extremely good quality and readily sells at 50 shillings per 100 kilograms. Bitumen is also obtained in middle Syria, especially at Sūq el-Khān near Hāsbeya ; these deposits are worked profitably and produce about 380 tons annually. Also, in northern Syria, it is obtained at Kefriyeh on the Lādiqīyeh-Jisr esh-Shughr road and at Bir Baseit.

Bituminous limestone, locally known as *hajar Mūsa* (Moses stone), is found at Nebi Mūsa near the Jerusalem-Jericho carriage-road ; also near Safed, and in northern 'Ajlūn. It provides a gas and an oil by a process of dry distillation and the stone is also used for making mosaics and small articles such as vases, crosses, beads, &c. -

Fluid asphalt is still produced from the ancient pits at Hāsbeya and Yahmūr ; most of that from Hāsbeya is exported, the amount, in 1911, being 75 tons. It is also obtained at 'Ain et Tineh, near Damascus, which takes all this supply ; and also near Lādiqīyeh.

Petroleum exists south-west of Alexandretta, but costly borings undertaken by a company of Basle, in 1889, led to little success. Borings near Lādiqīyeh also revealed the existence of oil. The geological formation of the Dead Sea area makes the existence of petroleum springs highly probable and the reports of travellers confirm this. In 1884, Schumacher found a petroleum spring at Tell el-Jamīd near the village of El-Quseir or Eqseir (Yarmūk valley, not far from

Maqārīm station on the Haifa–Der‘a railway): a boring was undertaken in 1912 by the Syrian Exploitation Company but, after reaching a depth of 600 ft. in 1914 and the expenditure of £T.12,000, the apparatus broke and the enterprise appears to have been abandoned. In the year 1914, the American Standard Oil Company was on the point of making borings for petroleum near Kurmul, about 44 miles southwards of Hebron, but was prevented from carrying on the work by the outbreak of war.

Salt.—Strata of ordinary salt exist at the south-west end of the Dead Sea, notably in Jebel Usdum where they are of great thickness, but the mineral is little worked because of transport difficulties. It is also extensively found at Tadmor (Palmyra) and at Jūd in the Haurān. Salt is obtained in Syria mainly from water, the most important supply being from the depression of Es-Sabkheh or Jebbūl, south-east of Aleppo and from artificial salt-pans on the northern shore of the Dead Sea. The industry is a government monopoly; in the year 1911–12, 12,000,000 kilograms and, in the following year, 9,300,000 kilograms, were obtained. Sulphate of magnesia and magnesium chloride are found south-west of ‘Ain Jidi (west of the Dead Sea).

Dead Sea water has valuable curative properties: wounds heal quickly as a result of bathing in it and the Arabs bathe for rheumatism. The bromide in the water should be good for nervous ailments and the whole question is deserving of investigation. Hot mineral springs are spread all along the great Central Depression: they are used very generally by the natives (especially the sulphur springs), and a large number of those in the Ghōr, as, e.g. the hot baths of Tiberias, are radio-active.

Sulphur is abundant in the Dead Sea basin and in certain parts of the lower Jordan valley. It is collected by the Bedouin at ‘Ain Jidi and Masada, but is not sufficiently pure for exportation on a large scale.

Alum is said to be found north of Wādi Zerqa Mā‘īn east of the Dead Sea.

Marble.—Of this widely distributed mineral, a green and a greenish-red kind are the most valuable and are used in Jerusalem and other towns for decorative purposes in buildings. The best quality is quarried at Beit Sāhūr near Mār Sāba and a second quality is got from Tantūr, south of Jerusalem. A white marble (*melekeh*), with rosy tinted markings is obtained near Jerusalem. Of good building stone of various kinds there is no lack throughout Syria.

Phosphates are found in the upper chalk strata in many parts of Palestine, notably on the eastern slopes of the hills of Judaea and also east of the Jordan; it is a product of fossil remains.

Gypsum is very widely distributed.

Lead.—There are traces of this metal in Jebel Aqra' north of Lādiqīyeh, in the Amanus range, at Ghōr ʿes-Sāfi south-east of the Dead Sea, in Wādi el-Hesa, and in Wādi Sarmūj (Ardh el-Kerak) a small valley just N. of the Hesa.

Copper.—In Jebel el-Arbaʿīn (northern Syria), a working is reported and there are deposits at Saida (Sidon). At the extreme south of the Dead Sea, there is a good deal of copper in the Cambrian rock and, to a lesser extent, in the chalk, e.g. in Wādi Ruweibeh.

Antimony is reported to exist at Alexandretta in the Amanus, and near Antioch; and *nickel* in Jebel Aqra'.

Chrome is obtainable in the neighbourhood of Alexandretta, Antioch, Lādiqīyeh, and in the Amanus. In the period 1886–8 an English company extracted 380,000 tons of this mineral.

FLORA

The flora of Syria is perhaps richer than any other country of its size in the world. The great diversity of soil, climate, rainfall, sun-exposure, elevation and depression, give opportunities for the growth of a very large number of species and varieties. The flowering plants alone are said by Post to number over three thousand species.

Plants and Trees

The following, according to Post, are some of the more widely distributed, typical, or peculiar varieties of plants and trees of Syria. The Arabic names with which they are generally identified are given in italics.

1. The principal forage plants apart from the numerous native grasses :

Lucerne (*qutāt*), *Medicago sativa*, L.

Vetch (*bāqiyeh*), *Vicia sativa*, L.

Vetch (*kersenneh*), *V. Ervilia*, L.

Alexandrian clover (*bersīm*), *Trifolium Alexandrinum*, L.

Sainfoin, *Onobrychis sativa*, L.

Barley (*qosīleh*, when cultivated as a forage plant), *Hordeum vulgare*, L.

2. The principal seeds and grains :

Lupine (*turmus*).

Fenugreek (*hilbeh*).

Chick-pea (*hummus*), *Cicer arietinum*, L.

Horse-bean (*fūl*), *Vicia Faba*, or *Faba vulgaris*, L.

Lentil (*‘adas*).

Pea (*bisellah*).

Sesame (*simsim*), *Sesamum Indicum*, L.

Barley (*sha‘īr*), *Hordeum distichum*, L., and *H. vulgare*, L.

Oats (*sheifūn*), sparingly cultivated in the northern districts.

Wheat (*qamh*).

Sorghum (*dhura beidha*), *Sorghum vulgare*, Pers.

Maize (*dhura safra*), *Zea Mays*, L.

Millet (*dukhn*), *Panicum miliaceum*, L.

Rice (*riz*).

3. The principal vegetables :

Cresses (*jerjār*, *reshād*), *Nasturtium officinale*, L.

Cabbage (*melfūf*).

Cauliflower (*qarnabīt*).

Turnip (*lift*).

Radish (*fijl*).

Caper (*qabbār*).

Bean, String (*lūbiyeh*), *Vigna sinensis*, L.

Bean, Kidney (*lūbiyeh-franjīyeh*), *Phaseolus vulgaris*, L.

Cucumber (*khiyār*), *Cucumis sativus*, L.

Pumpkin (*jelant*), *Cucurbita maxima*, Duch.

Parsley (*buqdūnis*).

Carrot (*jezar*).

Lettuce (*khass*).

Saffron (*za'farān*), *Carthamus tinctorius*, L. Used for tinging rice, &c., in cooking.

Tomato (*banādūra*).

Potato (*batāta*).

Egg-plant (*betinjān*), *Solanum melongena*, L.

Spinach (*sebānekh*).

Beet (*shemandūr*).

Colocasia (*qolqās*), *Colocasia esculenta*, Schott.

Onion (*basal*).

Garlic (*tūm*).

Asparagus (*halyūn*).

Marrow (*kōsa*).

Hibiscus or lady's fingers (*bāmiyeh*), *Hibiscus esculentus*.

4. The principal fruits :

Grape (*'enab*). There are very numerous varieties—from the Zante currant to berries as large and as firm as a Lady Apple, and they are of all colours from light green to black.

Orange (*burtuqān* or *burduqāl*), *Citrus aurantium*, L.

Orange, Bitter or Seville (*nāranj*, *abu sfeir*), *C. Bigarada*, L.

Orange, Mandarin (*Yūsuf Effendi*), *C. Madarensis*, L.

Lemon (*leimūn hāmidh*), *C. Limonum*, Risso.

Lemon, Sweet (*leimūn helu*), *C. Limonum*, var. *dulcis*.

Citron (*kibbād*), *C. medica*, Risso.

Cherry (*karaz*). Cultivated only from Homs northward.

Plum (*khaukh*). *Prunus domestica*, L. Many fine varieties are cultivated.

Plum, Sour (*khaukh ed-dāb*, *barqūq*), *Prunus ursina*, Ky.

The fruit is nevertheless eatable and the wood makes good fuel.

Blackberry (*ulleiq*), *Rubus caesius*, L., and other varieties.

Strawberry (*kubūsh*).

Pear (*ijjās* or commonly *najās*), *Pyrus communis*, L.

Pear, Wild Syrian, *P. Syriaca*, Boiss. It produces small, acerb, almost inedible fruit.

Apple (*tiffāh*). Many poor varieties are in cultivation.

Quince (*sferjel*), *Cydonia vulgaris*, Pers. Several excellent varieties are cultivated.

Apricot (*mishmish*). Several fine varieties are cultivated, among which are the *lōzi*, the *kelābi*, and the *fārisi*.

Peach (*derrāqin*). The peaches of Syria are inferior.

Nectarine. Cultivated at Damascus.

Medlar. Cultivated in Northern Syria.

Gooseberry, *Ribes Orientale*, Poir. It grows wild in higher Lebanon and Anti-Lebanon.

Fig (*tīn*), *Ficus carica*, L. Numerous varieties are cultivated.

Fig, Sycomore (*jummeiz*), *Ficus Sycomorus*, L. A poor, dry fruit.

Fig, Indian or Cactus (*subbeir*), *Opuntia Ficus-Indica*, Haw.

Pomegranate (*rummān*).

Persimmon. Of large size ; cultivated in Northern Syria.

Mulberry, White (*tūt*), *Morus alba*, L. Cultivated for silkworms and the leaves are used as fodder for cattle. The wood is much used in the arts, and as fuel.

Mulberry, Purple (*tūt Shāmi*), *Morus nigra*, L. Cultivated for fruit. The wood is valuable as timber.

Olive (*zeitūn*).

Banana (*mōz*).

Date (*balah*). Several varieties are cultivated. The pressed dried fruit is called *quttah*.

Melon (*batīkh asfar*), *Cucumis melo*, L.

Melon, Water (*batīkh alkhḍhar* or *ahmar*), *Citrullus vulgaris*, L.

5. The principal nut-trees :

Pistachio (*fustuq*).

Almond (*lōz*). The wood of *Amygdalus communis*, L., is much used in building. Certain varieties of almond grow wild.

Walnut (*jōz*). A fine shade tree, usually growing near fountains. The wood is much used in furniture making.

Filbert or Hazel-nut (*binduq*).

Beech, *Fagus sylvatica*, L. Confined almost wholly to the Amanus.

6. The principal medicinal plants :

Poppy (*khishkkhāsh*), *Papaver somniferum*, L. It is cultivated in Syria for its heads, of which a sedative decoction is made.

Mustard (*khardal*), *Sinapis alba*, L. = (*khardal abyadh*).
S. arvensis, L. = (*khardal barri*).

Marsh Mallow (*khitmīye*), *Althœa officinalis*, L.

Liquorice (*'urq es-sūs*), *Glycyrrhiza glabra*, L.

Senna (*sena mekki*), *Cassia obovata*, Collad. and (*sena sa'idi*), *C. lanceolata*, Forsk.

Colocynth (*hondhol*), *Citrullus Colocynthis*, L.

Henbane (*benj*), *Hyoscyamus aureus*.

Castor oil plant (*kharwa'*), *Ricinus communis*, L.

Squill (*basal el-fār*), *Urginea Scilla*.

7. The principal aromatic plants :

Cummin (*gammūn*), *Cuminum Cyminum*, L.

Caraway (*karāwīyeh*), *Carum carui*, L.

Dill (*shibith*), *Anethum graveolens*, L.

Fennel (*shumār*), *Foeniculum piperitum*, D.C.

Origanum (*za'tar*), *Origanum Maru*, L. Possibly the hyssop of scripture.

Mint (*na'na'*), *Mentha sativa*, L.

Rose (*ward*), *Rosa Damascena*, L. Attar of Roses is distilled from it.

Thyme (*za'tar*), *Thymus Syriacus*, Boiss.

8. The principal industrial plants :

Cotton (*qutn*).

Flax (*kittān*).

Hemp (*qinnab*), *Cannabis sativa*, L. The extract *Cannabis Indica* is known under the name of *hashīsh*.

Indigo (*nīl*).

Madder (*fuwweh*), *Rubia tinctoria*, L.

Soda plant (*ushnān* or *hashīshet el-qili*), *Salicornia fruticosa*, L.

Sugar cane (*qasab mass*).

Tobacco (*tabagh*, *titun*).

Tobacco, A variety of (*timbek*).

9. The principal trees and shrubs used as timber and fuel :

Terebinth (*butm*), *Pistacia Terebinthus*, L., and its variety *Palaestina*.

Terebinth, Muticous (*butm*), *P. mutica*, F. et M. The typical tree of the Syrian desert ; the Arabs gather the small seeds for tanning purposes ; the wood is used as fuel.

Maple (*qaiqob*). Three main species. A good fuel wood. Zaqqum (*zaqqūm*), *Balanites Ægyptiaca*, Del. A kind of balsam is prepared from the fruit and sold at Jericho as 'Balm of Gilead'.

Pride of India (*zinzilukht*), *Melia Azedarach*, L. The favourite shade tree of Syria ; wood used for house-timbers and fuel.

Jujube (*'ennāb*), *Zizyphus vulgaris*, Lam. The berries are eaten and the wood is used as fuel.

Christ Thorn (*nabq* or *sidr*), *Zizyphus Spina-Christi*, L. The fruit is edible, but astringent. Fuel.

Lotus (*nabq*), *Zizyphus Lotus*, L. Fuel.

Carob (*kharrūb*), *Ceratonia Siliqua*, L. A fine shade-tree ; also cultivated for its pods (St. John's Bread) out of which a kind of syrup is made ; also used for building purposes.

Acacia (*sant*), *Acacia Nilotica*, Del. A durable wood,

used for building purposes and for fuel ; possibly the Shittim wood of the Bible.

Acacia, Gum (*seyyāl*), *A. tortilis*, Hayne, and *A. Seyyal*, Del. Largely used as fuel and in making charcoal.

Hawthorn (*za'rūr*). Several varieties. The fruits of *Cratægus Azarolus*, L., are edible and make a delicious jelly.

Broom (*ratam*), *Retama Roetam*, Forsk.

Cotoneaster, *Cotoneaster pyracantha*, L. A tree with beautiful crimson inedible fruits ; wood makes good fuel.

Strawberry tree (*gotlib*), *Arbutus Unedo*, L. The berries are edible, but the wood makes poor fuel.

Storax (*hauz* or *abhar*), *Styrax officinale*, L. The resin is the storax used in medicine.

Sumach (*simmāq*), *Rhus Coriaria*, L.

Tamarisk (*tarfa* or *athl*), *Tamarix*, L., many varieties of which are found.

Ash (*dardār*). Highly valued for building purposes and for fuel.

Laurel (*ghār*), *Laurus nobilis*, L. Fuel.

Box, *Buxus longifolia*, Boiss. Wood used in the arts.

Hackberry or Nettle Tree (*meis*), *Celtis Australis*, L. A tree somewhat resembling the elm. Good timber.

Plane tree (*dilb*), *Platanus Orientalis*, L. A fine timber tree growing along the river bottoms.

Oak, Evergreen (*sindiyān*), *Quercus coccifera*, L. Good timber and fuel.

Oak, Portuguese (*mell*, *mellūl* or *ballūt*), *Q. Lusitanica*, Lam. Deciduous in autumn.

Oak, Scrub, *Q. Ilex*, L. and *Q. Cerris*, L.

Oak, Valonia (*lūq*), *Q. Look*, Ky. and *Q. Ægilops*, L. The cupules of the latter are used extensively in tanning.

Oak, Lebanon (*sindiyān*), *Q. Libani*, Oliv.

Hornbeam, *Ostrya carpinifolia*, Scop. Used for fuel.

Willow (*sifsāf*). Various varieties : white, *Salix alba*, L., the twigs of which are used for basket work and

making hedges ; Weeping, *S. Babylonica*, L. ; Black, *S. nigricans*, Fries, used in basket work and as timber ; &c.

Poplar, White (*haur*), *Populus alba*, L. A tree with a tall straight trunk, much used for roofing timbers ; also for house carpentry in the interior. It is extensively cultivated near water-courses throughout the country.

Poplar, Euphrates (*haur*), *P. Euphratica*, Oliv. Valuable for timber and fuel.

Poplar, Black (*haur*), *P. nigra*, L. Timber and fuel.

Poplar, Pyramidal (*haur*), *P. pyramidalis*, Roy. Timber and fuel.

Pine, Aleppo (*arz* or *snaubar juwwi*), *Pinus Halepensis*, Mill. The most widely distributed pine of Syria.

Pine, Stone (*snauba berri*), *P. Pinea*, L. A fine tree with a spherical head, but usually trimmed into a palm- or umbrella- like shape. It furnishes very heavy beams for roofing and good fuel ; the trunks are also used as supports for the heavy earthen roofs of flat-topped houses.

Cedar of Lebanon (*arz Libnān*, or *ibhul*).

Cypress (*saru*), *Cupressus sempervirens*, L. A shade-tree which grows especially in cemeteries.

Juniper : Large-fruited (*difrān*), *Juniperus drupacea*, Labill ; Tall (*lizāb*), *J. excelsa*, M.B. ; Phœnician (*sherbīn*), *J. Phœnicea*, L. Timber and fuel.

Distribution

Each region of the country has its distinctive flora. The *maritime plain* has the palm, the sugar-cane, the colocasia, the banana, the orange, citron, lemon, and mandarin-orange, which characterize its gardens and fields. In the dunes on the coast grow a large number of plants which are only adapted to the blown sand and seem to be provided to prevent this sand from overwhelming the fertile tracts. In the warm moist air of the coastal plains most sub-tropical plants can be cultivated in the open air.

The *lower and middle zone of the mountains* is the favoured home of the mulberry, the fig, the olive (which also grows luxuriantly in the maritime plain), and the vine. Tree culture is the main industry of the Lebanon and a considerable one on the mountains of Palestine. The cereals grown in the mountains are insufficient for the support of the population and cannot be rated as a staple in such districts. The main reliance of Lebanon is the mulberry, which not only furnishes the food of the silk-worm, but later that of the sheep and horned cattle. Anti-Lebanon is far less fertile and tree culture is less common; but there are many more forest trees here than in Lebanon, and at similar altitudes corresponding productions are raised. Hermon and Jebel ed-Drüz are (or were) partially wooded, bearing dense oak forests in places.

The forest trees of this middle-zone are : the Aleppo pine and Lebanon pine ; various species of maple ; the Portuguese, Lebanon, evergreen, Valonia and other oaks ; the Syrian ash ; the cypress ; the storax ; the arbutus, which attains the size of a considerable tree in 'Ajlūn and the Belqa ; the terebinth or turpentine tree ; and, in northern Syria, the beech and hornbeam. The walnut and almond are generally cultivated, as also the carob and pistachio. All the ordinary fruit-trees (apple, peach, pear, plum, apricot, &c.) flourish. The sycomore fig, though not very common, is widely distributed and grows to a great size. At an altitude of about 6,000 ft., the cedar of Lebanon flourishes and doubtless once covered the sub-alpine zone of Lebanon and Anti-Lebanon. It is now found in only a few groves of Lebanon and is extinct in Anti-Lebanon, but grows in considerable numbers in the Amanus range. Of wild fruit-trees, there are but few in this zone. The sour plum (*Prunus ursina*) is very common in the middle and sub-alpine regions of Lebanon and Anti-Lebanon ; a dwarf cherry flourishes in the same region ; and there are the jujube tree, the hawthorn, and the Syrian pear. Of shrubs, almost the only one with an edible fruit is the wild blackberry.

The *alpine peaks of Lebanon, Anti-Lebanon, Amanus, and*

the highlands of southern Syria support a copious and peculiar natural vegetation which, though useless to man directly, is of great indirect value as it furnishes the food of large flocks of goats which are the sole source of livelihood of no inconsiderable part of the population. Goats, however, do much harm by devouring all seedling trees and so preventing the renewal of the forests so needed in the high mountain ranges both as a direct source of wealth and as a regulator of the rainfall.

The characteristic wild flora of the almost treeless *plains of the interior* consists of numerous species of the milk vetch, the centaury, and the sage. These plains are one of the great wheat-producing regions of the Levant: maize, dhura, sesame, barley, and, in wet places, rice also flourish in this zone.

The flora of the *Jordan Valley*, besides sharing the characteristics of the lower levels of Palestine, has an element of tropical vegetation similar to the Upper Egyptian and Nubian. Palms and sugar-cane once flourished here. The so-called 'Balm of Gilead' tree (*zaqqūm*) grows nowhere in Syria but in the Jordan valley, and the same is true of the '*ushr*, or 'Apples of Sodom' (*Calotropis procera*), and the papyrus reed. The '*ushr* is a strange tree with large fleshy leaves, a crumpled corky bark, and a curious deceptive fruit—full of dusty threads and air instead of succulence. The papyrus covers very large areas in the marshes of Hūleh. The willow, poplar, and tamarisk are very common along the banks of the Jordan, and a kind of broom grows profusely in the side wādīs of the Jordan valley. Poplar trees grow also in considerable numbers on the watercourses in the Damascus district.

The *desert* flora is peculiar and interesting and consists largely of aromatic, saline and succulent plants and dwarf thorny shrubs. It contributes to man's maintenance by supporting considerable herds of camels and, in some places, asses. Not all the so-called desert is unproductive: the valleys of the Dead Sea Ghōr and towards Sinai have, until recently, contained large numbers of various kinds of acacia trees—*Acacia Nilotica* and gum acacia—tamarisk, Christ-Thorn, and

lotus trees which have furnished much charcoal and, though reduced, the supply is even yet not exhausted. The great tableland known as the Syrian Desert or Hamād furnishes pasturage for innumerable flocks and herds and supports a large nomad population.

Of *forests* in the strictest sense of the term, there are few of any importance in Syria, and, though a certain amount of planting has been done, those which exist are steadily diminishing in extent. In 1915, it was estimated that about 770,000 acres were covered by woodland. The chief wooded areas are in the hills of northern and central Syria—on Jebel Ansariyeh and the Lebanon—the greatest proportion being found in the kazas of Beilān, Alexandretta, Antioch, and Jisr; most of the trees are Aleppo pines. In the vilayet of Damascus stunted oak-trees are prevalent (e.g. in the 'Ajlūn district). In western Palestine, even small groves of trees, such as those on Carmel and Mount Tabor, are rare. Extensive plantations of eucalyptus trees, planted at Khudheireh by the Jewish colonists about the year 1900, were cut down for fuel and railway purposes during the war.

FAUNA

The *wild fauna* of Syria and Palestine, in Bible times, was probably more varied and included more of the larger wild animals than are now to be found. It is probable that the hippopotamus, the wild ass, and the lion were found in parts of Syria in historic times. It is asserted that the crocodile still exists in the marshy courses of the Nahr ez-Zerqa and the Nahr Muqatta'; but from early times the wild animals of the more formidable kind were extirpated or driven back into the deserts or remoter mountain districts. Of the larger mammals, the grey Syrian bear still exists in small numbers on the high peaks of Lebanon and Anti-Lebanon, and even in Upper Galilee and Mount Hermon; the hunting leopard, or cheetah, is occasionally met with throughout the wilder forest and mountain regions; the striped hyaena is not uncommon in Galilee and is now and then met with in the

eastern slopes of the Judæan highlands ; the oryx inhabits the deserts adjacent to Palestine ; the fallow deer (of which there are still a few stragglers) inhabits Carmel and the wādis of Galilee ; the ibex or wild goat (*badan*) is found in the deserts and the eastern and southern mountains as far as Sinai ; wolves are not yet entirely exterminated in Samaria and Carmel among other parts ; the bubalis (antelope) or *baqr el-wahsh* of the Arabs and the addax (antelope) are found ; the wild cat is not uncommon in northern Palestine, notably in Galilee and Carmel. But few of these animals are ever seen and fewer captured or killed by man. The chase, therefore, is of no great importance in this land for the maintenance of human life. Wild swine exist in numbers in the forests of Amanus, in the more secluded regions of Lebanon and Anti-Lebanon, and, especially, in the extensive cane-brakes of the Jordan valley and the Maritime plains. They probably owe their continued existence to the fact that they are regarded as unclean and unsuitable for food. The chase is now almost wholly confined to gazelles, hares, porcupines, conies, and other small mammalia and birds and to noxious animals, as the fox and jackal, most of which species are very numerous all over the country. The weasel and ichneumon are common in certain districts and are very destructive of poultry. The otter is found in some of the streams and rivers.

The *domestic fauna* of Syria is, however, of great importance and includes the camel, horse, ass, mule, buffalo, ox, sheep, and goat. The camel is the beast of burden of the Bedouin and its milk furnishes a considerable part of the food of these people. The ass, also, is an animal of exceeding value to man in this land ; it can live on the most meagre diet of thistles and stubble and yet do a surprising amount of work. The mule, as well as the ass, being very sure-footed, is especially adapted to the mountains and stony regions which are the rule in Syria and Palestine. The goat, the most numerous of all the domestic fauna of Syria, is also an animal capable of living where other grazing animals

would find little or nothing to support life, subsisting on a host of aromatic and bitter plants which no other quadruped will eat. The sheep is found mostly in the lower hills and the plains; in Lebanon and other elevated regions the fat-tailed variety is most common and, here, its food consists largely of the leaves of the mulberry tree. The buffalo lives chiefly in the river valleys and the marshy tracts of the coastal and other plains.

Of *birds*, water-fowl in great numbers and variety, including wild duck, storks, and flamingoes, frequent the marshes and lakes throughout the central depression and the swamps and marshes of the Maritime plain; pelicans in particular are exceedingly numerous in the marshes of Hüleh. Among the birds of prey are the eagle, kite, and hawk, and the crow is common. Quails, partridges, and wild doves are extremely numerous in certain localities; the first named are caught in nets in great numbers, or shot, along the coast. Many of the smaller kinds of birds common to Europe are found everywhere, but singing-birds are few both in number and kind. The Lake of Antioch and the plains near the mouth of the Jordan are said to be especially rich in bird life.

Reptiles—lizards, snakes (some of large size and venomous), scorpions, and centipedes of large size—are plentiful. Leeches are numerous in some of the wells and pools and are a source of danger to cattle at watering places.

Of *insects*, the most harmful are the mosquitoes; they are a pestilence in the marshes of the depression, the Jordan valley, the Dead Sea basin and the Maritime plain.

Fish are abundant in almost all the lakes and water-courses of Syria; even the small streams contain several varieties of small fry. The most important fishing grounds are those of Lake Tiberias and the upper reaches of the Jordan (see further, p. 549 f.). The R. Orontes, and the lakes in the northern section of the central depression are particularly rich in fish (see further, p. 397 ff.). Fish do not live in the Dead Sea on account of the unusual degree to which the waters are impregnated with mineral salts.

CHAPTER IV

MILITARY HISTORY

SYRIA is a land geographically distinct which has never achieved national or political unity. Left to itself it has always been a land of city states, with hill and border tribes interspersed. Its settled population is substantially one people, in spite of the admixture of many conquerors. A specific Syrian character has been maintained by reinforcements from the Arabs of the desert, who have always hovered on the borders and supplied additions to the population. The Arab conquest of the seventh century made a step towards the creation of a Syrian nation by giving the people a common language and religion. Even Jews and Christians speak Arabic, and at least the latter are practically of the same race as their Moslem neighbours. Especially after the Arab conquest a national state might have been established in Syria but for its geographical position, which has made its history one long record of invasion and conquest. Since the date when native Hebrew, Phoenician, and Aramaean principedoms existed side by side, the country has been governed, with no appreciable interval, by alien rulers only. Whenever Mesopotamia and Egypt have been the seats of strong governments, these have as a matter of course subjugated Syria. Sometimes the conquerors have come from Asia Minor (Hittites and Ottoman Turks), and sometimes from Europe (Romans, Greeks, Crusaders). But always some foreigner has governed. Sometimes there has been division of the country between Egypt and a northern power. A stable line of division can be drawn through the centre from west to east, with Damascus joined either to the north or to the south. In such a case the towns on the coast as far as Tripoli fall to Egypt, because of their accessibility by sea. Egypt has never held dominion beyond

the bounds of northern Syria, and its own subjection to a northern power has been exceptional and transitory. The prolonged Ottoman dominion of Egypt may be regarded as a (partial) renovation of the old empire of the Khalifs, and therefore as a case apart. The only complete conquest of Syria from the East took place in the seventh century. The only case of a part of the country maintaining its independence against powerful invaders occurred during the Crusades. But the result was then due to the support of Mesopotamia and Egypt. Cilicia and Euphratesia have always been closely associated with the political fortunes of northern Syria. The frontier of Cilicia towards Asia Minor may be regarded as the best military frontier of northern Syria.

The chief political centres have always been Aleppo, Damascus, and one or other of the cities on the coast, sometimes one and sometimes another. Antioch, Hama and Homs have played important parts in the political and military history at times. Jerusalem, the chief religious centre, is not prominent in the political and military history of the country. Sometimes the greater cities have made a good resistance to new conquerors, but generally their opposition has been negligible, apart from the protection of a foreign power. The fight for the possession of Syria has sometimes been settled beyond its borders. So far as the Syrians manifest a choice it is usually for a new master, who will treat them, as they hope, better than the old.

The usual line of invasion from the north is by way of Aleppo, Hama, and Homs. After this the invader must either keep eastwards and deal with Damascus, or pass through the Biqā' into Palestine. The Crusaders, however, advanced along the coast from Antioch to Jaffa, so keeping in touch with the sea, and through that with their sources of supply. Invaders from the north have frequently been met in the neighbourhood of Homs (Tartar invasions), as well as in the neighbourhood of Aleppo. When Antioch and Aleppo were rival capitals numerous battles were fought in the district west and south-west of Aleppo (Byzantine and crusading

periods). Invaders of Palestine coming from Damascus or the north have usually fought their battles in the plain of Esdraelon (Merj ibn 'Āmir). The decisive battle of Hattīn, on the hills above the plain, was an exception; the choice of site was then part of Saladin's plan for forcing the Latins to an engagement. There are three gates of entrance into Palestine from Damascus, (a) by Bāniyās, (b) across the Jordan, south of Lake Hūleh, (c) across the Jordan, south of Lake Tiberias. These also determine the routes by which an army from Palestine or Egypt advances against Damascus. The chosen battle-ground of the army of Damascus against an enemy approaching by either of the southern routes was frequently Merj es-Suffār, between Kisweh and Sanamein, a day's march south of Damascus. The invaders of Palestine from Egypt were usually met just on the border at Rafah (near Khān Yūnus) or towards Gaza. When an Egyptian garrison held Gaza or Ascalon, the country northwards as far as Ramleh and Jaffa was the scene of frequent battles (crusading period). Occasionally armies met farther north where the spurs of Carmel join the central hills (Thothmes III, Pharaoh Necho). It seems to have been unusual for invaders to enter the hill country of Judah from the Philistine plain. If they did so, a battle might have to be fought in one of the valleys leading towards Jerusalem (Ajnādein, A. D. 634).

The weapons and military methods and organization of Syrian wars are necessarily those of the foreign powers who have ruled and fought in Syria. They are commented on in each successive period. The development of equipment and tactics is always affected by collision with new enemies. This finds striking illustration in the case of the Arabs, who adopted and adapted the principles and practice of Greek warfare when they became a world power. As early as the ninth century they were also influenced by Turkish models and leadership. It is wrong to describe the tactics of the Moslem armies which fought with the Byzantines and the Crusaders in terms of the warfare of the Arabs of the desert. The 'oriental' method of fighting in mediaeval times and later was Turkish rather

than Arab. Of the local conditions which affect the military history of Syria attention may be drawn to the importance of the command of the sea for the defence and capture of the coast towns, to the numerous cases where lack of water for men and horses decided the issue of a battle, and to the frequency with which religious and racial divisions bred 'traitors' who betrayed otherwise impregnable towns into the hands of the besiegers.

In all study of ancient history the question of historical numbers is of fundamental importance. Even in modern works of repute quite fabulous figures for ancient populations and armies and battles are frequently given. It is not yet generally recognized that otherwise excellent sources of historical information may not supply reliable figures. Numbers in ancient history rarely rest on actual enumeration. Some writers choose their numbers on artistic principles. Such writers are generally remote from the events they describe, but they may also be contemporaries. The estimates of eye-witnesses are often affected by their state of mind. Modern experience shows that estimates of enemy forces, especially when these are victorious, are of little value. The impression of a great event, a great conquest, or a great battle, i. e. one having important consequences, seems to demand for its adequate expression, in popular currency, a great number, and certainly predisposes men to the acceptance of great numbers as part of the story. So much is this the case that grave suspicion must always attach to the allegation of large numbers in explanation of a great victory or conquest. Conquests, in fact, seem to have been accomplished with surprising frequency by very small numbers. Fortunately tradition hands down real as well as unreal numbers, so that definite proof of the unreal numbers may frequently be given, and a standard of comparison for other cases is supplied. The way in which numbers that pass from mouth to mouth, or from writer to writer, increase, is well known. Numerical data, which occur in writers remote from the events they describe are, therefore, of no value to a modern historian.

The general result of modern criticism is to reduce greatly the numbers of ancient history, in comparison with those of the present day. But this does not alter the importance of the events themselves nor the achievement of those who played a part in them.

I. EARLY HISTORY (15TH-9TH CENTURY B.C.)

Predominance of the Egyptians and the Hittites

The characteristic features of the history of Syria might be illustrated from events reaching as far back as 3000 B. C. But as the reign of the Egyptian king Thothmes III (early fifteenth century) supplies the first detailed account of an invasion of Syria, this may be taken as a starting-point. The population of Syria was then, in the main, Canaanite, although mixed with elements from the neighbouring peoples who had already often crossed its borders. The country was ruled by petty princes, whose principal towns occupied the sites and were denoted by the names which they have to-day. A league of the Canaanites of central Syria had been formed against the Egyptians, and their army waited for the invaders at Ta'annak, behind the line of hills that stretches east from Carmel. Thothmes marched from the frontiers of Egypt to Gaza (125 miles) in 10 days. When he reached the spurs of Carmel he chose the central road of the three which cross the hills to the central plain. The Canaanites let his army issue unmolested from the pass, and the decisive battle of the campaign was fought and won by the Egyptians at Megiddo. The town of Megiddo was besieged and captured, and operations were then conducted in the district of Lebanon. The whole campaign lasted from the end of April to perhaps the close of summer. The annals of Thothmes record after this 18 years of warfare in Syria. The policy followed was to conquer the Phœnician coast towns first, and then to transport by sea to central Phœnicia the forces which were to be used against the north. Evidently the Egyptians marched along El-Buqeia'h and waged war with the inland towns of northern

Syria from a base in Phoenicia. In this way Thothmes exercised some authority as far as Euphratesia.

The next century (fourteenth century B. C.) shows a northern power, the Hittites, ruling north Syria as far as the Biqā'. The Hittites were a people of Asia Minor, from which they conquered Euphratesia and the north of Syria. Egypt still exercised a nominal suzerainty over Palestine and the Phoenician coast. One of the periodic overflows of the population of Arabia into Syria now took place. The invaders were called Khabiri, and gradually mastered the centre and the south, where the Canaanite towns were disunited, and succumbed in turn to the warlike invaders. Towards the end of the century the Egyptian kings of the XIXth Dynasty (Seti I) began to restore Egyptian authority. Rameses II (early thirteenth century) has left several accounts of a great campaign in which he challenged the power of the Hittites of the north. His army marched by land, at first along the coast, afterwards through the Biqā'. Qadesh, at the northern extremity of the Biqā', near the modern Homs, was an outpost of the Hittites, and there the only battle of the campaign was fought. Details are preserved which show that the Egyptians marched in four divisions, that they failed to discover the position of the Hittites near Qadesh, that the Hittite army fell on the flank of the second division and cut it to pieces, and then attacked the first division, which was just encamping after the day's march. The Egyptians were saved by the eagerness of the enemy to plunder their camp, by the arrival of auxiliary troops (who had possibly marched from the coast, apart from the main army), and finally by the tardy approach of the third division. Both sides seem to have suffered severe loss. The Hittites withdrew into Qadesh. The Egyptian king returned home. A few years later peace was made between the Hittites and Egypt. The former remained in possession of the north, the latter retained Palestine and the Phoenician coast.

Early history of the Arameans, Philistines, and Hebrews

By the thirteenth century the Arameans, another overflow from Arabia, who had long infested the borders of Mesopotamia, began to settle in considerable numbers in northern Syria. In the twelfth century the Hittites were severely shaken by swarms of immigrants from Asia Minor, 'the peoples of the sea,' so that the Arameans became the dominant power in northern and central Syria. They absorbed the old Canaanite population and not a few of the Hittites, who had preceded them. For many centuries their language was the native language of the greater part of Syria.

Sometime about 1200 B. C. is a probable date for the entrance of the Philistines and the Hebrews into southern Syria. The Philistines were the only one of the 'peoples of the sea' to secure a permanent footing in Syria. They came possibly in ships to their new homes, and, unlike the Khabiri and the Arameans and the Hebrews, they were a people alien to the Canaanites, a different race with different customs ('uncircumcised'), who, however, in the end were semitized and absorbed by the previous population. The Hebrews, on the contrary, were a fresh inflow from the desert, whose settlement amongst the Canaanites resembled that of the Khabiri, with whom some would identify them. For 150 or 200 years they acknowledged no central authority, and their tribes made peace and war, separately or in groups, with the Canaanites and with the border peoples (Moabites, Midianites, &c.). This is the period of the judges 'when there was no king in Israel'. The Canaanite cities of the central plain kept their independence, and Jerusalem was a Canaanite town until the time of King David. Some strong towns were early gained by the Hebrews (Jericho), but clearly they were not numerous enough nor skilled enough to capture many fortified cities nor to face the Canaanite chariots in the open plain. The ultimate fusion of Hebrew and Canaanite may be attributed to their common suffering at the hands of the Philistines. In the early part of the eleventh century the Philistines became

masters of inland Palestine as far as the Jordan. Saul's career is distinguished by his deliverance of the hill country from their yoke. Gilboa, on the edge of the central plain, was perhaps the limit of his government.

The reign of David exemplifies the establishment of a native Syrian power of some considerable extent. David drove the Philistines back into the western lowlands, united the rest of Palestine under his rule, and subdued the country east of Jordan, including the Aramean district of Damascus. But his conquests did not survive his lifetime, and the union of Israel which he effected ended with the death of his son (Solomon). All the more do David's achievements and his military power demand special explanation. The king's personal qualities were probably an important factor in the case. (So was his employment of a standing army of foreign mercenaries and of adventurers, whose nucleus dates from the cave of Adullam. They were paid by plunder and by the wealth which conquest brings. In a country suited for empire building, and with a larger population, David might have accomplished more. The independence of the Phoenician coast towns, and possibly also of the Philistines, sharply marks the limits of his power. Solomon's reign as compared with that of David, was probably a period of decline. It cannot be maintained that his kingdom extended to the Euphrates.

The creation of David's kingdom was made easier by the quiescence of Egypt at the time. The division of Israel into two petty kingdoms after Solomon's death was probably settled or confirmed by the Egyptian invasion which then took place. Judah, to protect itself from its northern neighbour, Ephraim, made alliance with the Arameans of Damascus. The kingdom of Ephraim, thus placed between two enemies, made peace with Judah. Even so the Hebrews were a match for the Arameans only because of the intervention of Assyria from the north. The records of the wars between Judah and Ephraim and between Israel and Damascus are very fragmentary.

II. THE ASSYRO-BABYLONIAN PERIOD (9TH-6TH
CENTURY B. C.)*Palestine and Syria under the Assyrians and Babylonians*

Early in the ninth century the kingdom of Assyria on the upper reaches of the Tigris began to blossom into a small imperial power. The course of its expansion under Ashurnasir-pal quickly brought it into collision with the cities of Euphratesia and northern Syria. The limits of its authority in Syria were at first the hills of Lebanon and the Phoenician coast towns. In 854 B. C. a Syrian league, which included Hama and Damascus and Israel, was formed against Assyria. The allies were defeated at Qarqar, on the Orontes, near Hama. This opened the way for a series of campaigns against Damascus (850, 849, 846, 842, 839). But Damascus, although deserted by its allies, was not conquered. It has always been comparatively easy for a Mesopotamian power to reduce northern Syria. But the conquest of Damascus and of the Phoenician coast towns has generally been found a much greater task. Towards the end of the ninth century (805-804 B. C.) Damascus was besieged by the Assyrians and compelled to pay tribute. From then it lost ground in the border warfare with Israel. During the next half century the Assyrians were little seen in Syria. The reconquest of the north was, therefore, one of the early tasks of Tiglath Pileser (IV) in 741-738 B. C. The conquest of the southern states and towns followed. In three years (734-732) Tiglath Pileser subdued north Israel and the Philistine cities and finally Damascus. A large part of the territory of Israel and of the territory of Damascus became Assyrian provinces. The deportations of the population of the conquered districts were compensated by the introduction of colonists from other provinces. The Assyrian king was the professed ally of king Ahaz of Judah, so that Judah was unmolested and a portion of northern Israel survived as a vassal state. The Assyrian conquests were, indeed, far from secure. The Egyptians felt themselves to be menaced and fomented rebellion. Always, however, when it

came to a battle, Egypt was defeated, and the revolts of the Syrians made their position less tolerable than before. During one rebellion (724–721) Ephraim was eliminated and became part of an Assyrian province, in another (720) the king of Hama was defeated at Qarqar and an Egyptian army, helper of the Philistines, on the Syrian border at Rafah. A second Philistine revolt (713–711) was also suppressed. In 705 B.C. there was a general rising which could not be dealt with until 701 B.C. In that year the Egyptians were defeated near Ekron and Judah escaped destruction only because of an incalculable catastrophe which befell Sennacherib's army in the Philistine plain (? pestilence).

The Assyrians would have been wise to make the southern border of Syria the limit of their empire. But it is not surprising that they resolved to cross the 'river of Egypt' (Wādi el-'Arīsh ?). In the first half of the seventh century Egypt was several times invaded and partially conquered. A native viceroy was installed in lower Egypt and paid tribute. Syria, meantime, was quiescent, except that the Phoenician coast towns, which were easily reinforced from the sea, were restive and incompletely subdued. The years 652–348 were a time of revolt in Mesopotamia, which the subject peoples were not slow to turn to their advantage. Egypt recovered its independence. The Assyrian empire was hastening to its fall. Tribes from Asia Minor and the north swept over its borders. Medes on the east and Babylonians from the south renewed their attacks. After the capture of Nineveh by the Medes (about 606 B.C.) Babylonian kings ruled Mesopotamia and Euphratesia and Syria. An attempt of the Egyptians to annex Syria failed. They defeated a Syrian army at Megiddo (607 B.C., death of king Josiah of Judah), and advanced through the Biqā' and northwards to the Euphrates, only to be defeated in turn by Nebuchadnezzar at Karkemish. Under the Babylonians the Phoenician towns and the peoples of southern Syria (Jews, Philistines, &c.) showed the same tendency to revolt as in the time of the Assyrians, and were instigated and backed as before by the

Egyptians. It was now that the little kingdom of Judah was destroyed, after having twice revolted (586 B.C.).

The Assyrian Army

The Assyrians may be presumed to have contributed largely to the development of military equipment and military technique, though it is not possible to distinguish accurately between what they inherited and perfected and what they created for themselves. In the time of their greatness they necessarily maintained what may be described as a standing army. Their troops were organized in units similar to modern platoons and companies. There were 'captains of fifties' as well as 'captains of hundreds' and 'captains of thousands'. The infantry were the largest part of an Assyrian army. They were chiefly bowmen, armed with swords for personal defence. Co-operating with these were men armed with shields and spears. Sometimes a single bowman is represented as accompanied by a shield- and spear-bearer, but it may be supposed that generally groups of each class acted together. The horsemen were also armed with bows, that is, the Assyrians used the mounted bowman, an extremely effective combatant until the introduction of fire-arms. Chariots were a third arm in use; they were light vehicles drawn by two horses, carrying generally a driver and one bowman, both standing. The respective parts played in battle by the horsemen and the chariots can only be conjectured. Chariots may have been used in preference to horsemen for charging infantry. They are supposed to be older than horsemen as a military arm, and if the country suited them had a certain transport value. Presumably the superiority of the Assyrians in war was largely due to their superior arms and to their discipline and organization. They seem to have had an organized transport system which would be of value in distant and prolonged campaigns. About their tactics in battle little can be said. There are bare indications in the sources that an attack on the flanks was a favourite operation, and they are supposed to have aimed at surrounding

and compelling the surrender of hostile forces. As a *turtan* (commander) of the right and a *turtan* of the left are spoken of, they may have used a regular formation in two wings and a centre, the king being in command in the centre. Other high officers whose titles are known were the Rab-shake (2 Kings xviii. 17) and the Rab-mug (Jer. xxxix. 3, 13). The Assyrians employed a large amount of siege equipment (storming-ladders, battering-rams, siege-towers, &c.) and practised the ordinary methods of sapping and undermining walls and towers. Altogether they must have displayed considerable skill in the reduction of highly fortified and well defended towns, though the long resistance of Samaria, Damascus, and other places besieged by them marks the limitation of their methods.

III. THE PERSIAN PERIOD (6TH-4TH CENTURY B. C.)

After Babylon was captured by the Persian king Cyrus (539 B. C.), Syria and all the subject lands quietly accepted their new ruler. The Persian empire was greater and more beneficent than any previously existing world power. The subject peoples were treated considerately, and some at least were grateful. The Jews were restored to Palestine. Egypt was conquered before the end of the sixth century (526-525 B. C.), and remained subject for more than 100 years. The fourth century was a time of decay due to civil wars and the revolts of provincial governors. Syria, however, seems to have remained loyal, except for a brief revolt of the Phoenician towns (350 B. C.)

The Persians were famous for their mounted archers. They also used chariots, and are believed to have introduced the use of the scythed chariot in the East. In the fourth century Persian armies were largely composed of Greek mercenaries. This led to a combination of Asiatic and Greek methods of warfare, especially after the time of Alexander the Great. Greek armies consisted originally for the most part of foot soldiers. Their formation in line of battle was called a phalanx and was at first usually eight deep. They were exercised in drill movements ('about turn', 'right turn', 'left turn', 'half left turn',

&c.). In drawing up troops for battle most attention was paid to the formation of the wings. One was composed of the best available troops and was designed for the offensive, the other remained on the defensive. The result, when both combatants followed the same method, might be that one wing in each army was successful, and that the victorious wings were left to contest the issue. The centre seems to have acted as a reserve for the wings. Philip of Macedon and his successor Alexander introduced the employment of cavalry on the wings. The foot soldiers were then posted in the centre and were still the most numerous element in the army. The distinction between the offensive wing and the defensive wing was retained.

IV. THE HELLENISTIC PERIOD (4TH-1ST CENTURY B. C.)

The conquest of Syria by Alexander the Great was a part of his conquest of the Persian empire. After a great victory at Issus in Cilicia, in the autumn of 333 B. C., he invaded Syria. Part of his army marched inland towards Damascus, while he himself followed the coast line southwards. The submission of the Phoenician towns as far as Tyre gave him a powerful fleet with which he blockaded the harbour of Tyre while he besieged the city by land. Tyre was taken by storm in July 332 B. C., after a seven months' siege. The only other Syrian town that offered serious resistance was Gaza, which was also stormed, after a two months' siege, in the autumn of 332. From Syria Alexander entered Egypt, which submitted almost without resistance.

Alexander's generals divided his empire after his death (321 B. C.) into several kingdoms. One of these was Egypt, ruled by Ptolemy I and his successors. With it went Palestine. Another, the kingdom of the house of Seleucus, included at first Asia Minor, Euphratesia, Mesopotamia and northern Syria. One of its capitals was Antioch in northern Syria. Apamea (Fāmīyeh) was the military head-quarters of the kingdom and a centre of horse breeding. There were long wars between the Ptolemies and the Seleucids in which Syria

was the battleground. No consecutive account of these wars can be given, because of the imperfection of the sources. Egypt retained Palestine until the end of the third century B. C., while the Seleucids held northern Syria at least as far as the north end of the Biqā'. Damascus and the Phoenician towns seem to have fluctuated in their allegiance.

Towards the close of the third century B. C. the Seleucids made several attempts to conquer the whole of Phoenicia and Palestine. In the years 219-218 most of southern Syria was subdued by the Seleucid king, only to be lost completely in 217, in consequence of an Egyptian victory on the old battleground of Rafah (Raphia). Operations extending over the years 201-198 had a better result. The chief battle was fought at Bāniyās (Paneion) on the northern border of Palestine and the principal siege was that of Gaza. All Syria was now involved in the fortunes of the Seleucid kings.

The tactical methods of the Hellenistic period in Palestine were, as already indicated, essentially Greek in character. Standing armies of mercenaries were usual in the Hellenistic states. The centre now played a greater part in the decision of battles. The 'phalanx', increased to a depth of sixteen ranks, stood in the centre and was used offensively as well as defensively. The arrangement of the wings increased in complexity (advance guards, flank guards, &c.). Scythed chariots were borrowed from the Persians. Elephants were also used. They were placed in front, especially on the offensive wing. But they were found to be as dangerous to their masters as to the enemy. Chariots finally disappear from warfare with the coming of the Romans.

During the second century B. C. Rome from the west and Parthia from the east attacked and destroyed the power of the house of Seleucus. Asia Minor was easily acquired by the Romans (190 B. C.) and the border of the Parthian empire advanced towards Euphratesia (139 B. C.). In the closing years of the century rival Seleucid kings engaged in civil war and sank to the rank of petty princes. In consequence Syria dissolved again into its component parts. The Jews held

most of Palestine under princes of their own people, along the eastern border Arab tribes predominated, on the coast the Phoenician towns were a group of free cities. The first revolt was that of the Jews, under the leadership of the Maccabean family (168 B. C.). Inspired by religion and patriotism and favoured by local knowledge they waged intermittent war for 25 years against garrison posts and small expeditionary forces. The political weakness of the Seleucid kings compelled them to make concession after concession, until the Jews gained complete independence (about 143 B. C.). They shared southern Syria with the Nabateans, an Arab tribe, whose capital was at Petra and who even occupied Damascus for a time. An Armenian king (Tigranes) seized Cilicia and northern Syria in 83 B. C. and began to attack the Phoenician towns. He was compelled to evacuate his conquests by the Romans as they advanced from Asia Minor (69-68 B. C.).

V. THE ROMAN PERIOD (1ST CENT. B. C.—6TH CENT. A. D.)

Syria at the time of Pompey's invasion (64 B. C.) was a land of petty princedoms unprotected by any foreign state and therefore powerless against serious attack. The case of the Jews is typical. Only a small party attempted resistance. They made the temple in Jerusalem their fortress and were reduced after a three months' siege (63 B. C.). The only rivals for the possession of Syria whom the Romans had to fear were the Parthians, whose western border now reached the upper Euphrates. In their long wars with the Parthians the Romans generally kept the upper hand and thus saved Syria from attack. The Parthian invasion of the country in 40 B. C. was an episode and exceptional in the history of the period.

Even under the *pax Romana* local conflicts between rival peoples and rival rulers were not excluded. Sometimes the Roman army of occupation shared in these conflicts. Such a local war was carried on by Herod the Great against Antigonus in the years 39-37 B. C. Jerusalem was besieged and

captured after a five months' siege (37 B. C.). The resistance which it then offered to Roman troops is an evidence of its strength as a fortified place.

Of all the Syrian peoples the Jews were the most turbulent, from the Roman point of view. Their religious susceptibilities induced friction and revolt. Two rebellions were specially serious and were not easily suppressed. The principal event of the first (A. D. 66-73) was the siege of Jerusalem for five months (A. D. 70). Even its capture did not end the war. Small Jewish garrisons held strongly fortified castles which had to be reduced one by one. The second revolt did not last so long (A. D. 132-5). Jerusalem was no longer capable of defence. Still the Jews made a stubborn resistance elsewhere. After their defeat Jerusalem became a Roman colony, Aelia Capitolina, subordinate to Caesarea, the capital of Palestine. The Jews were no longer allowed to reside in their ancient capital. Another people who gave the Romans trouble were the Nabateans. Their kingdom was destroyed in A. D. 106.

In the third century (A. D.) the chief Syrian state was the new kingdom of Palmyra, a Hellenistic city with a large Arab population and Arab rulers. An attempt by Queen Zenobia to make herself independent was crushed by the Emperor Aurelian (272-3). He entered Syria by the Beilān pass and followed Zenobia as she retired from Antioch to Homs. Having defeated and dispersed her army there, Aurelian proceeded to the siege of Palmyra. Under pressure of a prolonged siege Zenobia left the city hoping to get reinforcements in Parthia. Her capture on the way was followed by the submission of her people.

From the third century onwards the chief rival of the Romans in the east was a revived kingdom of Persia. After the transformation of the Roman empire into the Byzantine empire, with its capital at Constantinople, the rivals were not unequally matched. In the sixth century Syria began to suffer from Persian invaders. In A. D. 540 the town of Antioch was sacked and in 571 Apamea. Finally in the

early part of the seventh century the whole of the Asiatic territories of the empire including Syria (A. D. 614-15) and Asia Minor were overrun by the Persians. Jerusalem, after a twenty days' siege, was captured and its great treasures were plundered (A. D. 614). Later the emperor Heraclius forced the Persians to a peace, in accordance with which Syria was restored. But his success demanded years of preparation and a long series of campaigns in Armenia, where the struggle was fought out (A. D. 622-8). In judging the issue of the Arab invasion of the seventh century the exhaustion caused by the Persian war is of fundamental importance.

VI. THE ARAB CONQUEST

As the Byzantine empire grew weaker the raids of Arab tribes into Palestine became more frequent. The Greek garrisons were few in number and small. The Christian Arab tribes on the borders acted as wardens and were paid by the Greeks for their services. The Arab invaders of A. D. 634 acted in the accustomed manner of these raiders and probably at first had no different purpose. They were at most a few thousands strong and operated under several leaders. The resolve to conquer Syria and make it a Moslem dominion was probably formed after some minor successes had shown how easily a permanent conquest could be made. The obscurities and contradictions in which the early history of the Moslem conquest is still involved are being gradually cleared away and the following account emerges from the latest examination of the subject.

The invasion commenced in the south of Palestine. The local governor, Sergius, operating from Caesarea, was defeated early in the year (A. D. 634). In July a considerable victory was gained by the united Arab bands in the Wadi es-Sant (at 'Ajnādein'). The Greek commander was Heraclius' brother, Theodore. The numbers of the Greeks and the circumstances of their defeat cannot be determined. Presumably all the troops available in Syria were engaged.

The Arab victory placed rural Palestine at the mercy of the invaders and they were encouraged to further enterprises. The tribes of Arabia were united in a measure by their recent conversion to Islam and were therefore in a position to form a common plan and to co-operate in the execution of it. Early in 635 they advanced towards Damascus, driving Greek forces before them. Engagements were fought at Beisān (January 635) and at Merj es-Suffār (February 635) on the way. The surrender of Damascus in the beginning of September was an act of the inhabitants who began to see that the Arabs were an alternative to the hated Byzantine governors.

Heraclius now made his one great effort to save Syria. In the summer of 636 an army of imperial mercenaries and Armenians and Arabs (drawn from the settled tribes of Syria) advanced through the Biqā' and past Bāniyās and across the Jordan, south of Lake Hūleh. They cut the communication between Damascus and Arabia. But the Arabs had already abandoned Damascus and had taken their position on a strong line of defence, just south of the River Yarmūk. The opposing armies seem to have faced one another on opposite sides of the Yarmūk for some weeks. Futile negotiations were carried on. Perhaps both sides awaited reinforcements and feared to risk attack. Apparently the Greeks at length took the offensive. The Arab victory was of supreme importance for the future of Islam and therefore for the history of the world. Unfortunately the course of the battle cannot be ascertained in detail. Certainly the Moslems were not greatly superior in point of numbers. During one phase of the struggle the Greeks appear to have been within sight of victory. But the composite character of their army was a disadvantage. Their leaders were at variance and perhaps their full force was not employed. Although most of the Arabs fought on foot they had a distinguished cavalry leader (Khālīd ibn Walīd), who seems to have dealt the decisive blow. A sand-storm blowing in the faces of the Greeks may have turned the scale against them (August 20, 636).

After this battle Heraclius abandoned Syria. Probably his resources were exhausted by the Persian war so that he could not do otherwise. The fate of the country therefore depended upon the attitude of its own population. Jews, Samaritans, and Christians all welcomed the Arabs as their deliverers from the persecution and oppression of the 'orthodox' Greeks. Naturally the Arab tribes of the eastern frontier were ready to throw in their lot with the new comers. Not a single Syrian town was captured by force of arms. Sooner or later they all accepted the generous terms of the Arab chiefs. Jerusalem and Caesarea were strongholds of Greek sentiment and power. They submitted in the years 639 and 640 respectively. Since the Greeks held command of the sea the towns on the coast were specially secure. Gaza and Ascalon did not submit to the Arabs until after the surrender of Caesarea. Tripoli was the last of the Greek possessions on the mainland. In 645 a large part of the population abandoned the city in ships and the gates were opened to the Moslems. Antaradus, on an island off the coast, was reduced in 648-9.

Two of the causes of the triumph of the Arab invaders of the seventh century have already been sufficiently emphasized, namely the weakness of the Byzantine empire and the preference of the Syrian population for Arab rule. The question of the military power and efficiency of the invaders is not so easily determined. Individually they were brave and practised combatants with sword and bow. Their leaders were experienced in the art of minor warfare and evidently were skilful enough to adapt the tactics and strategy of the desert to the greater tasks which now confronted them. Without such qualifications of leadership and fighting capacity the Arab victories could not have been won. On the other hand the invaders were severely tested only during the battle of the Yarmūk, and it may be that defects in the opposing army and the accident of a sand-storm turned the scale in their favour. Other alleged causes of their triumph, if allowed at all, must be strictly qualified. It has been suggested

that the Arabs won their victories as an army of horsemen. On the contrary, most of them fought on foot and they became famous horsemen only after they had conquered the horse-breeding lands of Syria and Persia. The view that they owed their success to their enormous numbers does not bear critical examination. In reality 5,000–6,000 was a great force even for the united Arab tribes to assemble. The Moslem invasion of Egypt in 639 was begun by an army of 4,000 men. The latest historian of the period gives 20,000–24,000 as the maximum strength of the Moslems at the battle of the Yarmūk and regards 10,000 as a more probable estimate. In any case the Greek army was not much, if at all, inferior to the invaders in point of numbers. Finally, the part played by the new faith of the Arabs has probably been overstated and has perhaps been wrongly conceived. The popular view, supported by Moslem tradition, that the Arabs set out to conquer the world for their faith can hardly be maintained. The influence of Islam consisted rather in this that the Arab tribes for the first time acted together in virtue of their common faith, and that a common direction and purpose were secured for their enterprises by the authority of the Khalifs, the successors of Mohammed. It was only later, perhaps, that Islam supplied such a sense of confidence and superiority as to become an appreciable source of military strength.

It remains to be said that even in the battle of the Yarmūk the Arab army seems to have been arranged according to a definite tactical plan. The front lines consisted of infantry and the cavalry was posted in the rear in support, especially on the flanks. There was probably a reserve under the chief commander, Abu 'Ubeidah. The disposition and tactics of Moslem armies from now onwards were plainly influenced by Greek and Persian models. Possibly Greek military principles influenced to some extent even the leaders of the conquest. The final result of this development is plainly seen in the period of the Crusades and will be described under that period.

VII. SYRIA UNDER THE KHALIFS (7TH-11TH CENTURIES A.D.)

Egypt and Syria


For 100 years after the Arab conquest Syria enjoyed almost unbroken peace within its borders. The country was part of a great Arab or Moslem empire, ruled by the Omayyad line of Khalifs. Though their capital was Damascus they were not in any special sense Syrian rulers. Thus the military forces of Syria were not tested, as such, either in civil war or in the wars with the Greek empire which were fought in Asia Minor. The Syrian border was not as yet seriously threatened from Asia Minor.

After the overthrow of the Omayyad dynasty (A.D. 750) and the establishment of the 'Abbasite khalifs, with their capital at Bagdad, Syria, and all the provinces of the empire, move towards a resumption of their ancient national histories. The 'Abbasite khalifs never held the allegiance of Syria as the Omayyads did. The country begins at once to resolve itself into its old divisions. The Arab tribes lead the way in the separatist movement. By the middle or the end of the ninth century Syria stands once more apart, in its accustomed relation to Egypt on the south and to the rulers of Mesopotamia north-eastwards.

The first Egyptian governor who became practically independent of the Khalifs of Bagdad was Ahmed ibn Tulūn (870-84). He added Syria to his emirate and so long as his family ruled they continued to be in a manner the overlords of Syria. A later line of Egyptian rulers, the Ikhshīd family (935-69), mastered southern Syria, including Damascus. The rest of the country was subject to the emir of Aleppo, Seif ed-dīn 'Alī (944-67). The division between north and south was finally regulated by treaty. Seif ed-dīn's territory included Cilicia and Euphratesia, as well as northern Syria. The Qarmatians were troublesome rivals of the Egyptians in the tenth century in the south, and invaded Syria in A.D. 903-6, 964, and 968. They were Arab adherents of a Moslem sect whose power began in the latter part of the ninth century.

In 969 the Fatimite khalifs began to rule Egypt. They at once sought to acquire the Syrian dependencies of their predecessors. At first the forces ranged against them, headed by Damascus, were too strong. But from 983 onwards the Fatimites were overlords of southern Syria, including Damascus. The most troublesome of the revolts with which they had to deal were risings of Arab tribes resident in Palestine (1011-13, 1024-9). The towns on the coast as far as Tripoli were governed by Fatimite emirs, who in some cases transmitted their authority to their descendants and so were petty dynasts. Between the Greek empire and the Fatimite khalifate Aleppo maintained a precarious independence. Its emirs usually paid tribute to the emperors and at the same time made a nominal acknowledgement of the khalifs.

Syria and the Byzantine Empire

After the Arab conquest of Syria and Euphratesia, Asia Minor was overrun but not permanently occupied. In the tenth century Seif ed-din of Aleppo was the most powerful emir on the borders of the Greek empire and brilliantly represented the warfare of his time and people. Every summer he raided and plundered the lands of the empire. His battles, on a small scale, were always fought in Greek territory. The Greeks used local forces to surprise and cut off the raiders. But no defeat deterred the Moslems from returning next year. Two Greek writers supply descriptions of this unending border warfare. In the eighth and ninth centuries the Moslem armies seem to have regularly included horse and foot. When they drew up in line of battle they were arranged in a rectangle  in which African bowmen stood in front and the horsemen were posted behind. In this order they stood firmly and preferred to await attack. The foot-soldiers advanced with the cavalry when they took the offensive. On the march each horseman carried a foot-soldier on his horse, if the distance were not too great. For longer marches the foot-soldiers also were mounted. Camels

were used for the transport of baggage. The writer from whom these particulars are given obviously reckons 4,000 to be a considerable Greek army, although he speaks of armies varying in size from 5,000 to 10–12,000 men.

The Abbasite khalifs early began to employ Turkish mercenary troops whose homes were in central Asia. By the middle of the ninth century the greater part of the regular troops of the khalifs were Turkish. Turkish generals began to lead their armies and Turkish governors to rule the provinces. Even before the Turkish conquest of the eleventh century, therefore, Turkish methods of fighting must have influenced the constitution and tactics of the Moslem armies. The second Greek writer, just referred to, represents the Moslem armies which fought with the Greeks in the tenth century as composed of horsemen only. He contrasts the Greek use of infantry joined to cavalry and regards it as an element of strength and superiority. The want of reference to Greek infantry in descriptions of actual battles is not a sure indication of their not being employed. They were of humbler rank than horsemen and their part was not considered equally worthy of notice. The same writer commends particularly the sending out of a portion of the Greek cavalry to draw the Moslems in rash pursuit into a prepared position, where the foot-soldiers and the majority of the cavalry were drawn up to receive them. Surprise attacks and attempts to cut off the raiders in defiles as they returned homewards played a large part in the Moslem war. When a Greek general had 5,000–6,000 good horsemen, in addition to his infantry, in an important battle, he was well satisfied.

In the latter part of the tenth century the power of the empire revived under a series of distinguished emperors, and Greek armies once more entered Syria. Aleppo was surprised and sacked in December 962 by Nicephorus Phocas. In this, as in many similar cases, the citadel was not captured, and the town was therefore evacuated in a few days. The changed balance of power is shown by the Greek conquest of Cilicia (962–5). In 968 an invading army ascended the

valley of the Orontes, passed Hama and Homs, turned to the sea through El-Buqei'ah and then northwards by the coast to Cilicia. The expedition was little more than a great raid and an encouragement to the Christian population. A garrison was left in Baghrās, a castle at the 'Syrian gates'. In October 969 the governor of this castle was admitted into Antioch by a party in the town. The Greeks thus secured a footing in Syria which they retained for 100 years. Antioch was strongly fortified and accessible from the sea. It became the Greek base of military operations against the Moslems and a standing menace to Aleppo.

Syria was invaded four times within 30 years in the latter part of the tenth century by Greek armies commanded by the emperors in person. It is significant that the invaders had in no case to fight a pitched battle, while, at the same time, their Syrian territory never exceeded the coast and the inland hills (Jebel Ansariyeh) south and south-east of Antioch. In particular the great expedition of 975 may have served its purpose as a display of power and a means of obtaining sums of money, but it left Syria unsubdued. The first of these four invasions was that of Nicephorus Phocas, already described (968). In 975 the Emperor John's army passed Hama and Homs, traversed the Biqā', reached Tiberias and Beisān and 'Akka, and finally turned northwards by the coast. The expedition lasted six months. The only permanent result was the occupation of some castles in the hills east of Lādiqīyeh. Basil in 995 raised the siege of Aleppo, which was being besieged by a Fatimite commander, and then with a small army followed the route traversed previously by Nicephorus. Tripoli was invested without success for 40 days. Antarsus was garrisoned by Armenian auxiliaries. Basil's second campaign (999) lasted three months. A number of castles in the Jebel Ansariyeh were captured and dismantled. Northern Palestine was raided. Tripoli was again unsuccessfully besieged for four weeks. A garrison was left in Sheizar, on the Orontes, near Hama.

The invasion of Romanus in 1030 and his defeat by the

emir of Aleppo did not alter the political situation. From 1037 onwards there was a stable peace between the empire and the khalifate. This gave the Egyptians a free hand against Aleppo. Twice for a short period Egyptian troops garrisoned the town (1038-42, 1058-60). The first occupation was a consequence of military success, the second of the abdication of the ruling emir. But the people preferred rulers of the local house of Mirdās, and the Egyptians were too remote to maintain themselves permanently. Their wars with Aleppo were carried on chiefly by means of Syrian troops sent from Damascus or Tripoli.

The Turks in Syria (11th century)

The Turkish conquest of Syria occurred in the latter part of the eleventh century. The process is no doubt representative of other periods where the facts are more obscure. There was no systematic invasion and no general resistance. Bands of 500 or 1,000 horsemen offered their swords to the Syrian emirs in return for homes and lands, or they planted themselves without permission in the smaller towns. They were better fighters than the Arabs and the Syrians and better disciplined. They paved the way for the claims of the Turkish sultans who already ruled in Mesopotamia. Turkish officers, who from being slaves had risen to high positions in the armies and counsels of the Syrian emirs, welcomed their compatriots. The first of the new settlers arrived in the neighbourhood of Aleppo in 1064. The Greek war, which had slumbered for twenty-five years, awakened again to life, especially after Aleppo was ruled by Turks (1071). After the defeat of Manzikert (1071) the empire lost ground in Asia Minor, and Antioch was abandoned to fight its own battles. It was surrendered by treachery to a Turkish emir in 1084. The following year the Turks were dominant in all northern Syria. Events in the south followed exactly the same course. For a few years one Turkish leader with a few hundred horsemen dominated the Belqa and inland Palestine (1071-76). Damascus having submitted to his authority he even ventured

to attack Egypt. Afterwards, in 1078, Tutush, brother of the great sultan Malik Shāh, occupied Damascus with stronger forces and the rulers of Egypt left him unmolested. The coast towns, from Tripoli southwards, maintained their native rulers. Their policy was to conciliate the Turks but to remain dependencies of Egypt. The chief Turkish towns were therefore Antioch, Aleppo, Homs, and Damascus. They were held by small Turkish garrisons. The bulk of the population was still Syrian and Arab. The Turks of this period are known as the Seljūq Turks.

VIII. THE PERIOD OF THE CRUSADES (12TH AND 13TH CENTURIES A. D.)

The First Crusade

The next conquest of Syria, by the Crusaders, has certain distinctive and unique features. It proceeded very slowly, it was never completed, and it was directed by a combination of west European powers. A belt of territory on the eastern side, extending from north to south, and including the great towns of Aleppo, Homs, and Damascus, was never conquered. These towns were less accessible to invaders from the west than the towns on the coast. But the failure of the Crusaders, when compared with the success of other invaders, must be attributed to other conditions. The Christian and European aspect of the invasion evoked a corresponding Islamic and Oriental opposition. Syria was supported in its resistance by Mesopotamia and Egypt, it was saved by Turks and Kurds. The Crusaders who established themselves in Syria depended for their very existence and for all future progress upon a continuous stream of reinforcements from Europe. At first reinforcements came abundantly, but subject to no central authority, guided by no plan and without much relation to the constantly varying needs of the Syrian situation. Even the greatest of the Crusades accomplished little. Besides, the Latin colonists themselves were divided and weakened by international and personal jealousies. From the date of their

first conquests they were organized in four separate principalities. Jerusalem was the capital of one, Tripoli, Antioch, and Edessa of the others. During their final struggle for existence in the twelfth century the Latins were, if possible, more divided than ever. Civil war absolutely sealed their fate.

The First Crusade aimed at more than the conquest of Syria or the deliverance of Jerusalem from Moslem rule. It was an expedition by the Christians of western Europe, under the auspices of the Pope, intended to assist the Christians of the East against their Moslem oppressors. It included Asia Minor as well as Euphratesia and Syria in its scope. It was sent in response to an appeal from the Greek emperor, and therefore the gathering point of the crusading armies was Constantinople, and their first attack was made on the Turks of Asia Minor. The argument that the invaders should have crossed by sea to Palestine overlooks this broad purpose of the Crusade as well as the difficulty of obtaining sufficient transport. The larger aspect of the Crusade must also be kept in view when judging of its success. Its greatest achievement was the check which it administered to the Turkish conquests of the eleventh century. Asia Minor was recovered for the Greek empire and Islam was held back from Constantinople for two centuries or more. If the Latins and the Greeks had continued their co-operation all Syria would probably have been subdued, and the territories of the Roman empire would have been recovered from their Moslem rulers.

The numerical strength of the First Crusade is not easily determined. The figures as given in popular histories are incredible. The details of the siege of Antioch, the calculated strength of the Moslem armies with which the Crusaders fought for a bare victory, and the more moderate statements occasionally found in the best sources allow us to conclude that the maximum number of fighting men available for the greatest battles would range from 12,000 to 15,000, of whom only a small proportion were mounted men. The Moslem armies were generally superior in numbers, but not over-

whelmingly so. Ten thousand was a large army for the period, twenty thousand might be reached, but very rarely. Cities like Aleppo and Damascus usually put in the field a force of 1,500 or 2,000 horsemen, occasionally with allies and auxiliaries, they reached a total of 3,500. The garrison of Antioch when besieged by the Crusaders cannot be reckoned at more than 5,000 soldiers. The civilian population did not add much to its strength. The heavily armed Latin knights were the chief element of strength in the crusading army, but the terrible loss of horses during the siege of Antioch greatly diminished their superiority in this respect. Early in the siege the total number of mounted men is given as about 700, in the decisive battle fought after the capture of the city (in June 1098) there were probably fewer. In August 1099 (at the battle of Ascalon) the number had increased again to about 1,200. The Crusaders who remained in Syria after the First Crusade were only a few thousands in number. The battles of the following period were fought with armies which seldom exceeded 5–6,000 men and were often less.

When the Crusaders entered Syria the northern part was ruled by Turks and the south by Egyptian governors. This division entirely excluded co-operation against the common enemy. Even the Turks were not united. When finally they did assemble an army under the chief command of the emir of Mosul, their divisions and jealousies still prejudiced their chances of success. The siege of Antioch was the first important enterprise of the Latins in Syria. Its capture and the occupation of the neighbouring country secured them safe communication by sea with the west and overland with the Greek empire. The presence of a numerous and friendly Armenian population to the north was also an important reason for their choice of objective. Antioch was invested and blockaded, at first very loosely, afterwards more stringently (October 7, 1097–June 3, 1098). It is remarkable that no attempt was made to destroy the strong walls of the city by siege engines or by mines. At least there is no record of this. The defenders were reduced by starvation, and entrance into

a tower on the wall was gained by the connivance of a traitor. The Latins themselves suffered greatly from scarcity of food and fodder, especially during three months in the winter. The assistance of the Armenians and the arrival of ships from Europe saved the situation. The only serious attack made on the Crusaders was by an army which reached Antioch after the capture of the city, but before the surrender of the citadel. There was lack of unity in the Moslem command and therefore in the plan of battle. The Latins seem to have been allowed to attack and defeat the troops of Syria and Asia Minor while the troops of Mesopotamia looked on. They gained a victory in spite of a bad position in which they had to face the enemy on two fronts.

The advance of the Crusaders from Antioch was postponed until the beginning of the following year (1099). As they marched south along the coast they passed some of the strongest towns in Syria. It is significant of the impression they had already made and of the Moslem failure in co-operation that no attempt was made to stop their progress, and that food and occasionally horses and money were freely given to the Latins. Jerusalem was besieged for five weeks in the summer (1099). It was not as well fortified as most of the greater towns, and its garrison was probably not more than 1,000 strong. Siege engines were constructed and the city was stormed through the breaches they made (15th July 1099). Next month an important victory was gained over an Egyptian army in the neighbourhood of Ascalon. Godfrey of Bouillon commanded the Latins and skilfully neutralized the superior numbers of the enemy by posting his men so that his right wing touched the sea and his left the hills. The weight and numbers of the Latin knights made their charge against the centre of the enemy decisive. The battle lasted only one hour.

Limit of Latin conquests in Syria

The limits of the Latin conquest were quickly attained. The close of the period of conquest must be set about the year

1112, although Tyre and Ascalon were not captured until much later (1124 and 1153 respectively). The territory of the Latin states finally included Palestine, the whole coast of Syria, most of Lebanon and the Jebel Ansariyeh, the open country south-west of Aleppo, and Euphratesia with the neighbourhood of Edessa. The most notable fact about the boundaries of this territory is that, with the exception of Euphratesia and the princedom of Edessa, it was dominated by the great towns on the coast which were besieged and captured with the help of European fleets. The inland territory of Edessa was gained and maintained by the help of the Armenians of the district. The limits of the province were determined by the limits of the Armenian population. The armies of the princes of Edessa consisted chiefly of Armenians, and the loss of their friendship was one of the causes of the early overthrow of the Latins in the north.

The main feature of the history of the Latin conquest subsequent to the close of the First Crusade is the gradual reduction of the strong towns on the coast. By means of Italian fleets, which came to Syria from Genoa and Pisa and Venice, year after year, the Latins held command of the sea and hindered the introduction of supplies from Egypt. There is no mention of an Egyptian fleet of more than 30-40 ships, much inferior in numbers to those of the Italians. These Italian fleets brought with them also the soldiers and the material which permitted of a strict investment and siege of the coast towns. In a few months even the strongest Moslem towns were starved or terrorized into surrender. There was not a single case of an adequate attempt at relief by a land army. The Syrian towns could not provide such an army. The Egyptians were discouraged by some early misfortunes (1101-05), and never realized that they should have challenged the supremacy of the Italians upon the sea, and that only a strong Moslem fleet could effectively protect the Syrian coast towns. The Italians were rewarded and stimulated to fresh efforts by the concession of trading privileges and the surrender to them of a portion of every town they helped

to conquer. Thus by the year 1110 all the towns on the coast excepting Tyre and Ascalon were Latin possessions. In every case an Italian fleet assisted during the final siege, and when, as sometimes happened, a siege was unsuccessful at the first attempt, the cause of failure was the want of a fleet or weakness in the blockade of the harbour.

Castle building played a great part in the subjection and defence of Syria in this period. Between Aleppo and the Orontes numerous border castles changed hands frequently and mark the advance and retreat of the opposing forces. Previous to the First Crusade the Jebel Ansariyeh, stretching from the neighbourhood of Antioch to El-Buqeī'ah on the south, was already a nest of castles. They guarded the approaches to the hills from the cities on the coast and from the cities of the eastern plain. They protected also the roads across the hills, e. g. Balātunus, Sahyūn and Esh-Shughr on the main road from Lādiqīyeh to Aleppo. The great castle of Husn el-Akrād commanded the eastern entrance to the Buqeī'ah and dominated the plain towards Homs. The slopes of Lebanon were also defended by strong castles, especially the roads leading into the hills from the Biqā'. Muneiterah, Sheqif Tīrun and Sheqif Arnūn were amongst the more important. These castles of the north and centre were greatly strengthened and extended by the Latins. In Palestine there was more building on fresh sites. While Tyre and Ascalon remained in Moslem hands it was the policy of the Latin kings to ring them round on the land side with castles. Against Ascalon they built Beit Nūba (1133), Beit Jibrīn (1136), Yebna (1143), Tell es-Sāfiyeh (1144), and finally Gaza (1150). The border castles either existed before the Latin conquest (e. g. Bāniyās) or belong to a late date in the period of occupation. But Mont Royal (Shōbek), south-east of the Dead Sea, was an early construction (1115), and Kerak, to the east of the Dead Sea, was afterwards associated with it (about 1140).

The Moslem resistance to the Crusaders was at first ineffective. The Egyptians were singularly unfortunate when

they had most chance of success (1101-05). The sultan of Damascus was just able to protect his territory east of Jordan and in the Biqā' and northwards towards Homs, which was also subject to him. Except in 1105, when he sent auxiliaries to fight in the Egyptian army at Ramleh, he engaged merely in border warfare beyond the Jordan and in the neighbourhood of Homs. Much of the territory of Aleppo was seized during the First Crusade, and if the town could have been seriously attacked in the period following (1100-10) it would almost certainly have fallen. But the princes of Antioch were hampered by the hostility of the Greek emperor with whom they were compelled to contest the possessions of Cilicia and even of Lādi-qīyeh on the Syrian coast. Besides they were occupied in extending their territory southwards in competition with the counts of Tripoli. It has already been noted that the Latins easily established themselves on the upper reaches of the Tigris with the help of the Armenian population. On this frontier the Moslems were strongest. The battle of Harrān (1104), won by the emirs of Mosul and Mārdīn over the combined forces of Antioch and Edessa, definitely checked their advance beyond the Bālikh river. Harrān and Raqqah remained Moslem towns. In Mosul and Mārdīn the movement for the reconquest of Syria began.

The year 1110 marks the commencement of a systematic offensive against the Latins. Its leader was Sharaf ed-daula Maudūd, emir of Mosul. His first campaigns against the Latins were in the territory of Edessa (1110-12), but he also relieved the pressure of an attack on Aleppo (1111). He found a ready ally in Tughtakīn of Damascus. At the suggestion of this ruler he invaded Palestine, advancing through the Biqā' and then by Bāniyās and Tiberias. Baldwin of Jerusalem met him at the south end of Lake Tiberias and suffered a severe defeat. It was the first serious defeat of the Latins since the battle of Harrān (1104) and it is significant that it was inflicted by the same enemy. Maudūd was assassinated at Damascus in the year of his victory (1113), but his work was carried on by his successors.




The first question to be decided in the contest between the rulers of Mosul and the Latins of Syria was the possession of Aleppo. For a few years after Maudūd's death the Moslem town was a submissive tributary of Antioch (1113-18). In 1118 the Latins began their greatest effort to occupy it and annex its remaining territory. Alone it could not have survived the attack. It was saved by Ilghāzi of Mārdīn, now the leading emir in Mesopotamia. He occupied Aleppo and vigorously waged war with the Latins (victory at Balāt, June 1119) until his death (1122). Aleppo endured its moment of greatest peril after the death of Ilghāzi's nephew and successor, Balak. The town was besieged by the Latins for four months and reduced to the utmost extremity (October 6, 1124-January 29, 1125). The siege was raised by the army of Mosul under Āq-Sonqor el-Bursqī, and the territory of Aleppo became part of this emir's dominions. For twelve months after his death (November 1126) there was civil strife in Aleppo, and then the great soldier and ruler, 'Imād ed-dīn Zankī, *atabek* of Mosul, received the town into his safe keeping (January 1128).

The art of war in the Crusading period

The crusading period in Syria is specially favourable for a study of the character of mediaeval battles and of the methods of warfare peculiar to the European and Oriental armies of the twelfth century. Numerous accounts of battles by eye-witnesses on both sides are available, and leave no doubt regarding the general characteristics and outstanding features of the principal engagements. There were fundamental differences between the Moslems and the Latins both in equipment and tactics. The Turkish armies were generally composed of mounted troops armed with bows and swords. Their invariable aim was to envelop the enemy, and they made their principal attack on one or both of his wings. Whatever the formation they adopted before the battle, in practice their front assumed the form of a crescent with the horns enclosing or seeking to enclose the opposing forces.

They had always reserves, which, however, seem generally to have been rather quickly drawn into the fight. If one of their wings was successful in its enveloping movement it was apt to pursue its immediate opponents off the field, instead of closing on the centre. When the army was large, judged by the standards of the period and country, and therefore was composed of the troops of several independent emirs, the several parts tended to act independently of one another. This partly explains the action of the wings just noted. Battles were commenced with a discharge of arrows, at some distance from the enemy. When the arrows were exhausted or a sufficient effect had been produced, the bows were laid aside and a charge was made with drawn swords. It is sometimes alleged by modern writers that a feature of the attack was the successive advance and retirement of distinct squadrons which drew off to return to the charge when their turn came again. Such an account implies a more regular movement than was actually in use. Divisions necessarily charged separately, and it might be successively, especially when several bodies of reserve troops were sent into the fight. But, apart from this, one may only say that the lightly armed Turkish and Arab horsemen in conflict with the western knights showed superior mobility and advanced and retired more freely. Egyptian armies were not so exclusively composed of cavalry as Turkish armies. They employed large numbers of Ethiopian infantry armed with bows and also with maces and other weapons suited for close fighting. But such infantry could bring the charge of the Latin knights to a stand only when the numbers of the latter were small.

In the greater battles of the period the offensive was generally taken by the Moslems. The Latins stood on the defensive until the enemy had closed in and were so massed together that a well-directed charge produced its maximum effect. The Latin victories were generally won by this charge an hour or less from the commencement of the fight. A battle of some hours' duration was exceptional. The form in which the Latins awaited attack was one of three divisions arranged

in some such order as  or  , where the rear division acted as a reserve. If the army was very large there might be three divisions and a reserve (battle of Antioch), thus  . Each division normally included horse and foot. A part of the foot soldiers were bowmen, and it was their chief duty to balance the missile attack of the enemy, and thus, in combination with the knights, to repel the charge of the Moslem horse. It was exceptional for them to take the offensive. It has been alleged, without sufficient proof, that in the early part of the First Crusade the Latins had no infantry sufficiently serviceable to co-operate with the knights. A battle fought without infantry was very exceptional, and demanded specially favourable ground and a speedy closing with the enemy. The strength of the centre or wings or reserve of a Latin army depended partly on the strength of the national forces assigned to these positions, since the troops of each nation or leader fought together. But two or more national or local divisions (*acies*) might be used to form the centre or one of the wings.

In several of the critical battles of the First Crusade the Latins chose their position so as to cover their flanks from envelopment, and at the same time neutralize the numerical superiority of the enemy. There are instances of successful manœuvring before battle. In 1100 Baldwin I drew the Moslems from a strong position at the Nahr el-Kelb by a feigned retreat. Before the battle of Harrān the Moslems seem to have exhausted and divided the Latin army by retiring before it. The Latins secured the same advantage during the battle of 'Ezāz (1125) by the same means. The Latin defeats occurred mostly when they did not or could not adopt their regular formation, e. g. when they were attacked on the march or when encamping. The skilful use of the reserve for a decisive charge is a feature in the tactics of the Latins. The tendency for a victorious wing to ride off the field in pursuit of the defeated enemy finds illustration amongst the Latins also (Hāb, 1119). Light horsemen, Turkopoles and Armenians, appear in the Latin armies soon after the First

Crusade. This and the adoption of light oriental armour by the western knights tended to assimilate the composition and tactics of the Latin armies of the following period to those of the Moslems. Still a difference in equipment and methods of fighting, especially at critical periods of the history, was maintained by the constant inflow of Crusaders from the west.

Zanki, Nūr ed-dīn, and Saladin (1127–93)

Zanki's career (1127–46) marks the establishment in Mesopotamia and northern Syria of a Moslem power against which the Latins could make no progress, and which was destined under his successors to be the instrument of their ruin. But he himself did not wage systematic war with the Latins. In Syria he aimed chiefly at the conquest of Damascus, which thus became an ally of the Latins (1139–47). In this period the Knights Templars and the Knights Hospitallers were increasingly the wardens of the border castles and an important part of the military strength especially of the kingdom of Jerusalem and the county of Tripoli. The interposition of the Greek emperor (1137–8, 1143–4) again distracted and weakened the Latins. Zanki's greatest achievement against them was the capture of Edessa (in 1144, after 28 days' siege). The suddenness of the attack, the entanglement of the Latins in war with the Greeks, and the alienation of the Armenian population were the chief factors in his favour. The event fired again the crusading zeal of Western Europe, but the strength of the so-called 'Second Crusade' (1148) was spent in a futile enterprise against Damascus.

The military weakness of the Latins in southern Syria may be judged from the failure of their attempts to conquer Damascus (1126, 1129, 1148). In 1126 the troops of Jerusalem and Damascus were fairly matched. The Latins advanced directly from the south, and were met on the Merj es-Suffār. They held the field after the battle, but went no farther. It may have been the plundering of their camp during the battle, and their consequent loss of equipment that decided

their hurried retreat. In 1129 troops from all the Latin states shared in the enterprise, and they were assisted by a large number of western crusaders. The clear cause of their failure was the inclement weather (December). They gained the castle of Bāniyās by the treachery of its governor. In 1148 large forces were employed. The king of France (Louis VII) and the German emperor (Conrad) both took part. Yet only five days were spent in fighting amongst the orchards on the outskirts of the town. The decisive causes of the retreat are obscure. Probably the chief influences were international jealousies and the action of those who had been opposed to the attack from the beginning. In all these expeditions insufficient preparation and insufficient appreciation of the difficulties beforehand suggest themselves as causes of failure. It is significant that in each case the Latins were only a few days, at most, in the neighbourhood of Damascus. The first two expeditions crossed the Jordan south of Lake Tiberias, and approached Damascus from the south by the Pilgrimage road. The third left Latin territory at Bāniyās, which was then a Latin stronghold.

The reign of Nūr ed-dīn Mahmūd (1146–74), Zanki's son and successor, began with vigorous and successful attacks on Latin territory in the north (1148–9). His acquisition of Damascus (1154) is a landmark in the history, because now at last all Moslem Syria was united under one ruler. After a period of comparative peace Nūr ed-dīn's general, Asad ed-dīn Shīrkūh, fought with Amalric of Jerusalem for the possession of Egypt (1163–9), while Nūr ed-dīn waged war in Syria. Nūr ed-dīn's capture of the border castles of Bāniyās and Hārim in one year (1164) is highly significant. No attempt could be made to save Bāniyās, because the main part of the Latin army was in Egypt. Antioch and Tripoli tried to save Hārim, helped by Greek and Armenian troops from Cilicia. The Latin army was large (12,000–13,000 ?), and so was Nūr ed-dīn's. The issue turned against the Latins when the victorious knights rode off in pursuit, leaving their infantry to defeat (August 1164). After the occupation of Egypt, its governor was Salāh

ed-dīn Yūsuf, afterwards Nūr ed-dīn's successor (known as Sultan Saladin). If he had co-operated loyally with Nūr ed-dīn, the kingdom of Jerusalem would have stood in grave danger. But Saladin aimed at independence, and thwarted Nūr ed-dīn's plan for the reduction of the Latin castles by the Dead Sea. The Sultan's death in May 1174 took place just when he was about to engage in war with his disobedient vassal.

For some years after Nūr ed-dīn's death Saladin failed in his attempts to gain Aleppo. But the rest of Moslem Syria and Egypt were his, and he was therefore in a better position than any of his predecessors for carrying on the Latin war. It is not clear that his invasion of southern Palestine from Egypt in 1177 was seriously intended, and his defeat (near Ramleh) had no important consequence. With this exception all his attacks on Palestine were made from the direction of Damascus, entering by Bāniyās or by the south of Lake Tiberias. The building of Castle Jacob by the Latins (1178), just south of Lake Hūleh, was intended to protect their frontier on the north-east. The defeats which they suffered in 1179 exemplify the special faults of their conduct of war. They straggled on the march, did not maintain the necessary combination of infantry (i. e. bowmen) and cavalry, are surprised in a bad position on the march; they dash impetuously on a small force, and are drawn in confusion into conflict with the main army of the enemy. These disasters culminated in the loss of Castle Jacob. The growing danger and the alarm of the Latins is marked by the quite unprecedented strength of their army in 1183 (1,300 knights and 15,000 foot). Although Saladin cannot have been superior in numbers, the Latins deliberately entrenched themselves on the northern slopes of the Merj ibn 'Āmir, and declined battle. Lack of provisions caused the Moslems to retire after an invasion which lasted only 10 days. The gathering place of the Latin armies in this and other times of danger was Seffūrīyeh.

In the spring of 1187 Saladin prepared his final stroke. His army probably numbered 20,000–25,000, to a large extent horsemen. The Latins were perhaps 20,000 strong, chiefly

foot soldiers, with 1,000–1,200 knights and a considerable number of Turkopoles (light horsemen). A decisive battle was fought on the road from Seffūriyeh to Tiberias (July 3–4, 1187). On the first day, on ground he had chosen, Saladin fought his enemy to a stand, and cut them off from all but meagre supplies of water. The Latins were exhausted by the summer heat and by the lack of water. On the second day the Latin knights were separated from the foot soldiers, and surrounded by mounted bowmen whom they could not resist. The foot were driven on to a waterless hill and compelled to surrender. This battle of Hattin was a crushing blow for the vanquished. Every castle and town had been depleted of its troops for the sake of the defeated army. Thus Saladin's further task was made easy. By the end of 1189 practically all Palestine, as far as Tyre, and northern Syria except the towns of Tripoli and Antioch, were conquered. To secure speedy surrenders Saladin allowed the Latin garrisons to take refuge in Tyre, and in some cases released prisoners taken at Hattin. His policy is open to obvious criticism. Still its success was great, and the ultimate fate of the country depended upon the issue of the struggle with the so-called 'Third Crusade'.

The Latin colonies in Syria were saved from extinction by a great European intervention. Reinforcements from France, England, Germany, and Italy poured into Syria for more than two years, and joined in the siege of 'Akka (August 28, 1189–July 12, 1191). Saladin lay a short distance from the town during all the siege, and reinforced and reprovisioned it from the sea. His emirs were always against his risking a battle, and in time the superior numbers of the crusaders imposed restraint. The city was induced to surrender upon equitable terms. When the French king Philip returned home, Richard of England became the principal leader of the crusade. On August 25, 1191, his army set out for the siege of Ascalon. Saladin's policy was to destroy the fortifications of the towns on the coast south of 'Akka, and harass the Latins on their march. He twice attacked them in some strength, as they crossed the rivers by Caesarea and Arsūf. Their trying

experiences on the march, and uncertainty regarding the best plan of campaign, decided the Crusaders to pause and fortify Jaffa. International jealousies and Richard's personal circumstances now decided the English king to open negotiations with Saladin. These negotiations lasted a whole year, during which time the Crusaders fortified Ascalon. The other movements of the army were insignificant, and the engagements with the enemy mere skirmishes. A treaty was signed on September 2, 1192. The Latins retained the coast from Tyre to Jaffa. Ascalon was dismantled, and was to be left unoccupied for the duration of peace (three years). Jerusalem remained Moslem, but the Latins were to enjoy the right of pilgrimage, and to retain the Church of the Resurrection. In the north Tripoli and Antioch and a certain amount of territory beside them were left to the Latins. The great castles of Marqab, Sāfīta, and Husn el-Akrād, belonging to the Knights Hospitallers, also survived the wreck of the Latin States.

Latin Syria in the 13th century

The Latin colonies still survived almost exactly another century. But all the time they were under sentence of death. Western Europe had made its great effort to conquer Saladin and had failed. The surviving cities on the coast could not resist even a moderate Moslem power. Superficially regarded they appear for the next fifty years to improve their position. Minor crusades came with considerable frequency, and the successors of Saladin made them concessions, largely because of domestic troubles. Except for brief intervals of war carried on by the crusaders from Europe, there was generally peace between the Latins and the Moslems. Beirut and Jubeil (1198), Jaffa and Nazareth (1204), Jerusalem, Tibnīn, and Saida (1229), Safed, Sheqif Arnūn and Ascalon (1240), and finally Tiberias (1244) were restored to the Latins. But no single town was captured and no victory in the field was gained. Jerusalem was lost again in 1244, and Ascalon and Tiberias in 1247, and when the Mamluk Sultans united Syria

and Egypt under their rule and seriously resumed the 'holy war', the end was near at hand. The Syrian Latins split into warring sections, and made separate treaties with the common foe, and spent their strength in civil war. No crusades came from Europe in the last years of the period, and no battles were fought with the Moslems. A series of sieges, generally brief, inexorably diminished the Latin territory. When the stubborn resistance of 'Akka was overcome (1291), the defenders of the surviving towns lost heart, and the last surrender was made a few months later.

The most interesting of the military expeditions from Europe in the early part of the thirteenth century struck, rightly, at Egypt (1218-21, 1249-50), and so lie outside the limits of this survey. The most influential was that of Frederick II. But his only military achievements were the fortification of Caesarea and Jaffa and Saida, and the building of a new castle (Qurein) for the Teutonic knights of the Hospital. Part of the crusade of 1239-40 suffered a serious defeat near Gaza in November 1239. The event again exemplifies the military errors of the Crusaders. A large portion of them separated from the main body in the hope of securing plunder; they were attacked whilst resting after a long night march; the bowmen had not a sufficient supply of arrows; the ground was sandy and unfavourable; the enemy stronger than the Crusaders had supposed; having found a safe position, they let themselves be drawn out of it by a pretended flight. At least 600 were taken prisoners, and many were killed. Gaza was the scene of several battles about this time (1239, 1242, 1244), because it was the most advanced position of Egypt in south-western Syria, and a base of their attacks on the Latins.

The invasion of the Kharismian Turks into Syria brought fresh disaster upon the Latins (1244). They were a roving band invited from the neighbourhood of Harrān by the Sultan of Egypt to assist him against a league of the Latins with the Sultan of Damascus. A decisive battle was fought at Gaza, in which the Latins and their Moslem allies were defeated.

The military orders suffered severely. The commander of the Egyptian army was Baibars, afterwards Sultan. Probably the efficiency of the Egyptian army was largely due to its contingent of Mamluks (Turkish slaves), of whom Baibars himself was a representative.

Louis IX, during his stay in Palestine (1250–4), after he left Egypt, had very small forces with him (1,400 men), and he spent his time in negotiations and in fortifying Jaffa and Saida. When Baibars became Sultan of Egypt and all Syria (1260), he resumed the Latin war with great effect. The Latins had no army with which to resist him. His longest sieges lasted only 5 weeks (Arsūf and Sheqīf Arnūn). Antioch was stormed on the third day after the Moslems reached the town (May 1268). Its citadel surrendered two days later. The great Hospitaller castle of Ḥusn el-Akrād surrendered after 15 days' siege (April 1271). One of the last of the crusades was that of Prince Edward, afterwards Edward I of England. Only the knights of 'Akka co-operated with him, and his crusade accomplished nothing (1271–2).

At Baibars' death (1271) the Latins held the coast from Marqab, north of Tripoli, to 'Athlīt, south of 'Akka. The last steps in the Moslem conquest were the sieges of Tripoli (1289) and of 'Akka (1291). The former held out for 34 days; the latter, in spite of a brave resistance with large forces, for not much more than 6 weeks. Evidently the siege methods of the Moslems were highly perfected. Trained engineers and miners and powerful siege engines were in use. It may be that credit for these methods should be given to Sultan Baibars personally. At least it is known of him that one of his first measures as Sultan was the complete renovation of the Egyptian navy, which had been greatly neglected after the death of Saladin.

IX. THE RULE OF THE MAMLUK SULTANS (13TH-16TH CENTURIES)

The Tartar invasions (13th and 14th centuries)

The Khans of Tartary began to threaten Euphratesia and Syria in the latter part of the thirteenth century. They were disposed to friendship with the Christians of western Europe, and in the East both the Latins of Antioch and the Armenian kings of Cilicia gladly became their allies. Their repulse by the Mamluk sultans is a proof of the military power of Egypt at this time. It must, however, be remembered that the strength of the Egyptian armies lay in Turkish, and, generally, Asiatic soldiers, who were of the same race and possessed the same qualities as the Tartars themselves. It was really a case of diamond cut diamond. Besides, the conquest of Syria was a remote enterprise for the Khans, and their invasions were occasional and spasmodic events.

The first of these Tartar invasions, under the leadership of Khan Khulagu, occurred towards the end of the year 1259. Aleppo and northern Syria were occupied without much resistance. The grandson of Saladin, who was nominally ruler of Moslem Syria, made no attempt to defend his possessions. From Aleppo Khulagu sent one of his generals, Kitbōga (with 10,000 men?), to occupy Damascus and southern Syria. The citadel of Damascus capitulated after a blockade of two months (June 1260), and all Palestine was raided by the invaders. Seif ed-dīn Qutuz, the Mamluk Sultan of Egypt, then advanced against the invaders. A battle was fought at 'Ain Jālūd, at the eastern extremity of the Merj ibn 'Āmir, (September 3, 1260). The armies were probably closely matched, and the issue hotly contested. The victorious Egyptian army consisted largely of Kharismian Turks. All Syria now passed under the dominion of the Mamluk sultans.

In the winter of 1260-1 and again in 1271 small forces of Tartars ravaged north Syria, but generally speaking, during the Sultanate of Baibars, Egypt maintained an offensive against the Tartars and their Armenian allies of Cilicia. In the

autumn of 1280 Aleppo was plundered by a Tartar expedition. In the following autumn a larger force appeared under the command of Mangu Timur, Khulagu's brother. The Sultan of Egypt, Qilāwūn, assembled an army, which took its position beyond Homs, on the way the Tartars were advancing (October 1281). Mangu's force included Armenians, Latins, and other Christians, to the extent of one-third of its total strength. The course of the battle is typical. Mangu's right wing, on which the Christians stood, was victorious, and pursued the Moslems off the field. But Qilāwūn's centre and right stood firm, and finally the charge of his reserves gave him victory. The fall of Mangu Timur from his horse at a critical moment is said to have thrown his troops into confusion, and to have contributed to their defeat.

Ghazan Khān, the greatest of the line of Khulagu, struck more emphatically at Syria. As in previous invasions his army left home in autumn (October 1299). Passing by Aleppo and Hama he reached Selemyeh about the time when the Egyptian army reached Homs (December 22). In a battle fought between these places the Tartars were victorious. The Arabs and Syrian troops on the Egyptian right wing were the first to give way. According to some accounts their left wing was victorious and chased their opponents off the field. At all events the decision depended on the Mamluks of the centre, who were surrounded and finally defeated. The Tartar horsemen are related to have fought at first on foot, holding off the enemy by discharges of arrows until the time was judged favourable for charging. The Egyptians are noted to have had a body of flame-throwers, but they miscalculated the range and were quite ineffective.

Although thus routed, the Egyptians do not seem to have lost severely and were soon ready to take the field again. Ghazan, having occupied Damascus and plundered the town and suburbs and raided Palestine, left Syria in February 1300. He had taken none of the citadels of the great towns, and he had accomplished nothing permanent. Next winter he again invaded Syria and laid waste the territory of Aleppo and

Antioch and Sheizar. But the heavy rains of January checked his progress. An Egyptian army awaited the invaders near Hama, but no battle was fought.

Ghazan's final invasion of Syria was timed to arrive in the end of March. The chief command was given to Kutlu Shāh. The Syrian army posted at Hama withdrew to Dāmascus and the Tartars followed quickly, hoping to secure a decision before the main army from Egypt could arrive. In this they did not succeed. The Moslem armies united in the Merjes-Suffār, and the Tartars were now inferior in numerical strength. Still they took the offensive and the ensuing battle lasted two days (April 20 and 21, 1303). Finally the Tartars retired to a hill where they stood surrounded without sufficient water for themselves and their horses. They barely succeeded in cutting their way out, and retreated by the road they had come. The death of Ghazan next year (1304) ended the Tartar invasions of Syria for 100 years.

Under the strong rule of the Mamluk sultans Syria now enjoyed a period of comparative peace. The chief feature of the military history of the fourteenth century was the war carried on with the Armenian kingdom of Cilicia, which flourished early in the century but was destroyed before its close (1375). Asia Minor was already passing into the hands of the Ottoman Turks, but as yet they were chiefly occupied with European wars and did not covet Cilicia.

The invasion of Syria by Timur lenk (Tamerlane) was of a punitive character (1400-1). The emirs who opposed him near Aleppo were easily defeated (October 1400). In front of the centre of the Tartar army were Indian elephants, having archers and flame-throwers mounted upon them. Aleppo, Hama, Homs, and Ba'albek surrendered in turn without much resistance. The Egyptian sultan, who reached Damascus just before the Tartar army, either was not prepared for the invaders or played a very pusillanimous part. He abandoned the city in less than a fortnight, and Timur took possession (January 5, 1301). The citadel also surrendered after a short siege. Timur's army remained in Damascus till the

end of the winter. The city was plundered before he left and set on fire, accidentally or intentionally. All Syria suffered from the invaders as they retired.

An interesting Tartar treatise on the principles of the art of war belongs to this period. It is there laid down as conditions of military success (1) that a battle should be fought on level ground, unbroken by natural obstacles and with ample room for extension in line; (2) that a sufficient supply of water should be available; (3) if possible, the ground should slope towards the enemy; (4) above all, the sun should not be in the face of the troops as they advance. On these points it may be observed that the methods of fighting both of the Tartars and of the Mamluk sultans favoured the choice of open ground, so that the defenders regularly await their opponents on such ground, and that it is remarkable how often in the battles of the period want of water did contribute to the defeat of armies. The order of battle described in the treatise is essentially that of all Syrian wars from the Arab period onwards. There are two wings and a centre. The centre is given the strongest advance guard and includes in the rear the best troops as a reserve. The wings are divided into sections which are intended to be thrown into action in succession. It would seem to be regarded as normal that the centre should begin a battle, but the existing narratives of battles fought by the Tartars show that the enemy wings were sometimes first attacked.

The triumph of the Ottoman Turks

During the fifteenth century Syria remained under the rule of the Mamluk sultans and still enjoyed immunity from external attack. Its borders were rounded off by the possession of Euphratesia and Cilicia. The local emirs waged a border warfare in which their superiority was secured by the help of the sultans. Frequent domestic wars, resembling those of other periods, were of the nature of personal struggles and may be passed over. In the latter part of the century the Ottoman sultans began to dispute possession of Cilicia

with the Mamluks, and the certainty of a decisive contest with them became apparent. Bayezīd II (1481–1512) was a weak ruler, and the Mamluks in his reign held the upper hand. With the accession of Selīm I (1512–20) a new policy was inaugurated. It looked to Persia and Syria for fresh conquests. Armenia, Kurdistan, and Upper Mesopotamia were quickly wrested from the Shah. The conflict with the Mamluks was extraordinarily brief. One battle, at Merj Dābiq, a day's journey north of Aleppo, decided the fate of Syria. The Mamluk army represented their full strength, and it fought as bravely and as skilfully as ever. It was the Ottoman artillery and firearms that decided the day against them (August 24, 1516). Another victory in the neighbourhood of Cairo (January 22, 1517) secured Egypt also. The Mamluks knew, of course, the use of firearms already. But they had not developed their use against serious opponents, as the Ottomans had. Their overthrow was due to their failure to recognize the far-reaching effect of a new invention. The quiet and complete submission of Egypt and Syria to the rule of the Ottoman Turks was due in the first place to the wise measure of home rule which the conquerors accorded to their new provinces, and in the second place to the intercourse and sympathy which Islam at once created throughout the new empire of the Khalifs.

X. SYRIA UNDER THE OTTOMAN TURKS (16TH–19TH CENTURIES)

Characteristics of the Ottoman period

The Ottoman conquest did not greatly alter the political condition of Syria. The Turkish population was only slightly increased and the governing classes were little disturbed. Certain taxes which it had been customary to send to Cairo were now sent to Constantinople; one nominal ruler was substituted for another; pasha, beg, and agha were used as official titles instead of sultan and emir. But the atmosphere created by the governing class remained the same and every

career was open precisely as before. The Pashaliks of Aleppo, Tripoli, Saida, Damascus, and Palestine could be won by force as well as by favour, and the pashas raised their own troops, governed as they pleased, and were free to wage war with one another. A special feature of the sixteenth century is the growth of the power of the Druses, whose principal strongholds were in Lebanon and who exercised authority over the coast as far as Qaisāriyeh. In the early part of the seventeenth century the chief historical events are connected with the career of the Druse chief Fakhr ed-Dīn (1584–1635). He waged war with the pashas of Tripoli and Damascus, and, being the most powerful ruler in Syria, conducted himself as an independent prince.

The petty wars of the eighteenth century need not be described in detail, but their value as illustrating the military resources of Syria, and the conditions under which Syrian wars have always been carried on, may be emphasized. The moderate numbers of the fighting men, the lack of cohesion in the forces employed, the part played by surprise in securing victory, the numerous nationalities which divide the country into factions and their changing combinations—are all typical of Syrian history generally. Only the weak fortifications of the towns and the lack of skill in siege warfare seem to mark a real declension as compared with the days of the Mamluks and the Tartars. The shifting character of the population of Syria is also noticeable. The movements of the Arab tribes continue. The influx of Berbers from North Africa commences in the beginning of the century. They became the mercenary infantry of the pashas. About the middle of the century the Metāwileh migrate from Ba‘albek and anti-Lebanon into the Lebanon hills and strengthen the resources of the rulers of ‘Akka, which is now the chief town on the Syrian coast.

‘Omar ez-Zāhir and Ahmed el-Jezzār

The careers of two men are specially instructive and of outstanding interest. ‘Omar ez-Zāhir, in European books

generally referred to as Daher or Taher, was early in the century an Arab chief whose principal village was Safed. Having seized Tiberias he carried on war with the pashas of Damascus, just as Tancred had done with their predecessors in the crusading period. In 1749 he seized 'Akka from a subordinate of the pasha of Saida and established himself in it. He restored somewhat the defences of the city, attracted a population by his good government, increased his power by treaties with Arab tribes and with the Metāwileh, and thus became strong enough to wage war with Damascus on equal terms. When he allied himself with the Egyptian ruler 'Ali Beg (1770-3), and obtained the help of Russian ships (1772-3), there was a prospect of his becoming master of all southern Syria. But the death of 'Ali Beg (1773) and the peace between Turkey and Russia (1774) and quarrels with his own sons resulted in his defeat and death (1775). His successor in 'Akka was Ahmed el-Jezzār. He was a Bosnian by birth, had been a slave of the Egyptian Begs, and had recently won a military reputation in Syria. Adventurers flocked to his service, and his pashalik extended till it included the coast from Beirut to Qaisāriyeh, along with northern Palestine and the Biqā'. His efforts to gain the pashalik of Damascus were not permanently successful, but he was the most powerful ruler in Syria, and by fortifying 'Akka (from 1786 onwards) made it the strongest town on the coast. The Ottoman Government would have dispossessed him more than once if they had been able. Yet when Napoleon invaded Syria they appointed him at once chief commander of their forces.

The invasion of Napoleon

Napoleon's invasion of Syria in 1799 was primarily a defensive measure. The French in Egypt were threatened by an invasion from the sea, where the English fleet under Sir Sidney Smith was supreme, and overland by a Turkish army which was reported to be assembling in Syria. Napoleon resolved to disperse the Turkish forces in Syria and to take

possession of the coast of Palestine. This measure, if successful, would both deprive the enemy of the resources of Palestine and simplify the future defence of Egypt. It might, besides, dispose the Ottoman Government to come to terms with the French republic. The season was favourable, and Napoleon hoped to return to Egypt within two months of his departure. The wider projects of a conquest of all Syria and an invasion of India by way of Mesopotamia, referred to in his memoirs, as published by General Bertrand, were not part of his plan at the time.

The leading events of Napoleon's invasion were the siege of 'Akka and the battle of Mount Tabor. The Ottoman Government sent munitions and guns and trained gunners from Constantinople, and these were landed in Jaffa and 'Akka. Otherwise at first El-Jezzâr had only his own troops for the defence of Palestine. When 1,000-1,800 of them had been routed on the border, near El-'Arîsh, and the garrison of Jaffa (4,000-5,000 men) had been annihilated, Jezzâr's only policy against a French army of about 13,000 men was to defend himself as best he could in 'Akka. It is unlikely that his garrison there exceeded 4,000-5,000 men, but Sir Sidney Smith's guns and sailors were a potent backing, and in critical circumstances the city was reinforced from Turkish ships by 5,000 men under orders from Constantinople.

An army under the command of the other Syrian pashas, consisting chiefly of troops from Damascus and northern Syria, moved into Palestine after the siege of 'Akka had lasted about three weeks. Of all grades it may possibly have numbered 10,000 men. It was engaged by a French division under Kleber (2,000 men) at El-Fûleh, near Mount Tabor, and kept at bay for nine hours. Possibly the French field guns, joined to the excellent discipline and superior arms of the infantry, sufficiently explain the stand which the French thus made. Possibly the Turkish leaders held off, expecting victory when the French should be utterly exhausted by fatigue and thirst. A victory similar to that of Saladin at Hattîn seemed to be within their reach. Suddenly, however,

in the late afternoon, Napoleon with fresh troops (2,500 men) attacked the Turkish army from two points in the rear, and at once they broke and fled. The French had not sufficient cavalry to inflict much loss on the discomfited enemy. But no further attempt to raise the siege of 'Akka was made by the Syrian pashas.

Napoleon's invasion crippled the resources of Syria in men and material, and taught the pashas that they could not hope for success in a pitched battle with the French. So far, it accomplished its purpose. On the other hand, the siege of 'Akka being unsuccessful, the occupation of Palestine became impossible and the retreat of the French gave the whole campaign an aspect of failure. The critical event of the invasion was, therefore, the siege of 'Akka. A combination of circumstances determined the event. In the first place the defence was bravely and skilfully conducted by Jezzār's troops and by his Ottoman gunners. Napoleon, in his memoirs, remarks that the fighting qualities of his opponents told in siege warfare more effectively than in open warfare. Besides, a French engineer, Louis-Edmond de Phéliepeaux, superintended the construction of defence works and counter-mines with an ability equal to that of the besiegers. Then, further, the guns of the city and of the English ships were superior to the French guns and were better supplied with munitions. Finally, most important of all, the command of the sea was held by the defenders. Owing to this Napoleon's transport and means of communication were always disabled, and reinforcements and supplies could be introduced without hindrance into 'Akka by sea. On the day before the siege began the ships which brought the French siege guns and supplies from Egypt were captured off 'Akka by Sir Sidney Smith. These guns were mounted at once for the defence of the town. Even this single misadventure probably made the difference between success and failure. Other guns were brought seven weeks later overland from Jaffa, but it was then too late.

At no period of the campaign were the French transport

and supplies organized on a satisfactory footing. The attack on 'Akka was hampered frequently by scarcity of munitions. From the beginning too few camels and horses were available for transport. Astonishing negligence on the part of the enemy allowed the French to obtain great stores of provisions and even of powder and shot on the way from Egypt (at El-'Arīsh, Gaza, Ramleh, Jaffa, and Haifa). The Turkish loss of guns, munitions, and 25 days' provisions in Jaffa was, perhaps, unavoidable, but the stores accumulated at Gaza, Ramleh, and Haifa should not have been allowed to fall into the hands of the invaders. The friendly relations which Napoleon cultivated with the Druses and the Metāwīleh in Lebanon gained for him a useful source of supply.

As a further preliminary to the following sketch of the events of the campaign it may be remarked that Napoleon in his dispatches and in the memoirs already referred to systematically magnified his operations and his successes. Skirmishes become battles, and enemy forces of 2,000 and 10,000–12,000 became with facility 4,000 and 30,000 or more. His losses, on the other hand, are minimized. The total casualties as calculated recently by a member of the French General Staff are: killed in battle 1,200, died of disease (including plague) 1,000, sick and wounded 2,300 (of whom about 100 lost a leg or arm)—out of an army almost exactly 13,000 strong. From the time Napoleon left Egypt to the time of his return the army suffered from plague. This discouraged the troops and diminished their effective strength, but it had not the decisive influence attributed to it by the memoirs.

The line of march from Egypt was by Qāti' and El-'Arīsh and Gaza. Qāti' was occupied by a French force on January 7, 1799, and became a *dépôt* in which stores were accumulated for the invading army. At the same time flying columns operated against the Arabs of the desert and gathered horses and camels for transport. On February 6 an advance guard left Qāti' for El-'Arīsh, which was reached on the night of the 8th. El-'Arīsh fort was held by about 1,000 of Jezzār's

troops, and a protecting force 1,000–1,800 strong, under Jezzār's general 'Abdallah, lay a short distance off. Even after the surprise and defeat of the protecting force (night of February 14) the garrison defended itself so well and the prospect of further loss to the besiegers was so grave that Napoleon granted the defenders favourable terms of surrender, which they accepted (February 20). Gaza was occupied on the 24th after a skirmish with 'Abdallah's forces, which now for the most part entered Jaffa. The French army left Gaza on February 28 and entered Ramleh on March 1. On the 3rd they approached Jaffa, which they successfully stormed on the 7th. The fortifications were poor and were easily destroyed by the French field guns. Most of the garrison laid down their arms together, being promised their lives, after the French had penetrated the outer defences and held part of the town. Considering the number of guns the defenders had, and that 300 Turkish gunners had arrived the day before, the defence should have been better. 'Abdallah was among the prisoners. Jaffa now became the French port of communication with Egypt.

The army resumed its march towards 'Akka on March 14, it crossed the spurs of Carmel by the Wādi el-Qasab and invested 'Akka on the 19th. Napoleon's choice of a point of attack was condemned by some of his staff, and the difficulty actually experienced in making a breach at this point gives colour to their condemnation. Still it cannot be assumed that an attack otherwise directed would have succeeded better. The first attempt at storming was made on March 28. The breach was impracticable and quickly seen to be so. After further bombardment and the blowing up of part of the counterscarp a second attempt failed equally (April 1). Already the besiegers experienced a certain discouragement and the defenders gained confidence. A great mine, intended to blow up the tower which was the chief protection of the defenders of the breach, began to be excavated and engaged the miners from the 3rd to the 24th of April.

During this interval an attempt to relieve 'Akka from

Damascus was made. Troops had been posted at Nazareth and elsewhere to guard the French rear. The engagements in the plain of Lūbiyeh on April 7 and 11 were with portions of the enemy and were of a very slight character, although represented by the French as considerable victories. Finally the Turks encamped in the Merj ibn 'Āmir (plain of Esdraelon) near El-Fūleh, and Kleber followed them as ordered by Napoleon, although with much inferior forces. Napoleon's timely attack on the rear of the enemy gained a decisive victory as already described (battle of Mount Tabor, April 16, 1799).

The activity of the defenders of 'Akka in obstructing and countermining the operations of the besiegers decided Napoleon to explode his great mine on April 24. The result was disappointing. The tower was still defensible and the French attack was repelled. Napoleon's hopes now rested on the effect of siege guns which were on the way from Egypt. The trenches were pushed forward and another mine was opened. The mine was destroyed, but the heavy guns were put in position on May 7 and the final assault was appointed to take place on the 9th. That same day (May 7) Turkish ships with reinforcements on board (5,000 men) were seen to be at hand. Napoleon ordered the assault to begin at once. On the 7th, 8th, and 10th a sustained attempt was made to storm the town. The French penetrated the first lines of the defence, but failed before the interior lines. They are said to have lost 200 killed and 500 wounded in this last effort. When Kleber's division, recalled from Nazareth, was repulsed on the 10th Napoleon decided to raise the siege. Probably he judged that success was beyond his reach. At all events the city was not worth the price that would still have to be paid for it. An early return to Egypt was imperative, affairs in France would soon require him to leave the East altogether.

Ten days were spent in organizing the retreat from 'Akka. On the morning of the 21st the enemy learned that the French had departed the night before. The retreat was accom-

plished without much molestation. But the army suffered from the forced marching and the scarcity of provisions. Guns and munitions had to be abandoned and destroyed. Villages and crops were burned as a measure of protection from pursuit. At Haifa, Tantūrah, and Gaza some plague cases were abandoned. El-'Arīsh was reached on June 1. A garrison of 500 men was left here. Four or five days were required to reach Sālihīyeh from El-'Arīsh.

XI. MOHAMMED 'ALI AND IBRĀHĪM PĀSHA

Forms of modern European organization and drill were introduced into the Egyptian and Ottoman armies at about the same time (1822 and 1826 respectively). The reform in the one case was due to Mohammed (Mehemet) 'Ali Pasha (1805-49) and in the other to the Ottoman sultan, Mahmūd II (1808-39). The chief features of the new methods were: (1) the systematic training of the soldiers in drill movements and in the handling of weapons; (2) their organization in symmetrical units (regiments, &c.). The undrilled forces of the older armies fought to a large extent as individuals, and the military units, so far as they existed, lacked cohesion and discipline, and therefore full effectiveness in attack and defence. Under the new system the commanders exercised more control in battle and could better calculate the numbers of their troops and thus dispose them more accurately according to plan. In the older armies the units were not even approximately of uniform size, and the distribution of the troops in a given area or on the field of battle was uncertain and irregular. Under the reformed system an army in battle order was arranged in two or three successive lines, the rear line acting in support and as reserves, and each unit being of uniform depth. The ancient crescent movement of the front line (see page 141) was replaced by movements in straight lines. Troops trained and organized according to the new model may now be distinguished as regular troops. The Arab contingents and other local levies, which still fought in both armies in the old manner, are the irregulars. Regular troops, however, after they had

been absent from the instruction camps for a time, tended to revert to the undisciplined movements of the irregulars.

‘Abdallah ibn ‘Ali, who became pasha of ‘Akka in 1820, is the most prominent figure in a turbulent and typical decennium of Syrian history. The crisis and the end of his career were provoked by a conflict with Mohammed ‘Ali, ruler of Egypt. The Egyptian invasion of Palestine in 1831 was directed against ‘Abdallah in the first place, although it was taken by the Ottoman Government to be a challenge to its authority, and so inaugurated a war between Egypt and the Ottoman Turks for the possession of Syria. A brief campaign in which a siege of ‘Akka (1831–2) and a battle near Homs (July 1832) were the chief events secured Syria for the Egyptians. After several years of occupation, in which the Ottoman Government acquiesced, the struggle was renewed (1839). A fleet, chiefly English, representing the European allies of the Sultan, attacked the Syrian coast towns in 1840. Within four months, without any great battle being fought, the Egyptian army, under Ibrāhīm Pasha, evacuated the country. Some general comments on these events will clear the way for a more particular account.

Napoleon’s siege of ‘Akka and Ibrāhīm Pasha’s offer more points of contrast than of resemblance. The latter gave five months to the siege. Napoleon could afford only two. Ibrāhīm’s troops were nearly twice the number of Napoleon’s, his guns were more numerous, and he was supported by warships which bombarded the town and brought him reinforcements and supplies. On the other hand, ‘Akka was protected by an additional exterior wall, and the defenders were at first very confident of success. The final assault, in May 1832, might have been repelled and the city might have been maintained for some months longer if the garrison had been more numerous. The Ottoman Government acted most foolishly in not sending reinforcements by sea, as they could have done. With this encouragement and assistance ‘Abdallah could have held out at least for the time which the army of Asia Minor needed in order to reach ‘Akka.

Both the conquest of Syria in 1831-2 and its loss in 1840 were facilitated by the attitude of the Syrian population. In the former case they supported the Egyptians, in the latter the Turks. This change of sympathy was due to the unwise government of Mohammed 'Ali. From 1833 to 1840 increased taxation and a rigorous conscription were imposed and completely alienated the inhabitants, especially in Lebanon. In 1840 the antipathy and hostility of the Syrians were a grave weakness in the Egyptian military position. The hill peoples of Lebanon gave most valuable help during the allied operations in the neighbourhood of Beirut. They were armed by the invaders, and not only hampered Ibrāhīm Pasha in his measures of defence, by holding the hills against him, but also decisively turned the scale in favour of the invaders when they finally drove off the Egyptian forces. The events of 1840 strikingly illustrate the importance of the sympathies of the hill population in the case of an attack on the coast towns of central Syria. The hostility of the Arab tribes to the east of Jordan and in the south of Palestine greatly added to the suffering of the Egyptian army during its final retreat.

The share of the allied fleet in the reconquest of Syria in 1840 was important. The camp at Jūneh Bay, where the invading force landed, was secured by its guns. The rapid blows at widely separated points on the coast were made possible by the transport and gunfire which it provided. The cutting of Ibrāhīm's communications by sea with Egypt was a deadly blow when the Syrians turned against him. Of course the easy triumphs of the allies over the coast towns were much beyond what may normally be expected from similar operations. Only 'Akka was strongly fortified. The capture of Saida in a single day and the surrender of 'Akka after three hours' bombardment were obviously conditioned by the cowardice and demoralization of the Egyptian garrisons. Beirut was held for more than a month against a combined attack by sea and land, and the principal achievement of the fleet at this point was the landing of the allied forces. The garrison of Tripoli was withdrawn by Ibrāhīm Pasha, although

it was not attacked. Jubeil and Haifa and Jaffa could not be and were not seriously defended.

Ibrāhīm Pasha gained an unbroken series of victories over the Turks in 1832 and 1839 (Homs, Beilān, Konieh, Nizib). His army consisted chiefly of Egyptian peasants drilled by French instructors and led by Turkish officers. His success was due to his good generalship and that of his staff, including notably Suleimān Pasha (a Frenchman, Joseph Sève), and still more to the amazing blunders of the Turkish commanders. At Homs only one half of the Ottoman army consisted of regular troops, drilled in the modern European manner. Besides, owing to the fault of the commanders, they fought under most disadvantageous conditions. After the first victory Ibrāhīm's prestige and the corresponding lack of confidence amongst the Turks contributed to the continued success of the Egyptian army. It may still, therefore, be maintained that if the issue of these battles had been decided by the fighting qualities of the Egyptian and the Ottoman soldiers, the latter would have shown their usual superiority. Indeed, the discipline and general *morale* of Ibrāhīm's armies were far from good. At Nizib, especially, the quality of the Egyptian army, by this time mixed with Syrian levies, was poor (1839). In 1840 the desertion of Syrian and Egyptian troops, on a great scale, was common.

Ibrāhīm's poor defence of Syria in 1840 has called forth sharp criticism of his capacity as a general. His army was scattered in garrisons and camps all over the country, and divisions numbering 1,000 or 2,000 or 4,000 men were attacked and defeated by superior numbers of the enemy. If he had assembled even the garrisons of the coast towns and the troops of central Syria he would have been superior to all attack ¹

¹ Quite reliable figures are not available. Suleimān Pasha at first had nearly 7,000 men under his command in Beirut and its neighbourhood. The garrison of Saida may have numbered 3,000 men and the garrison of Tripoli is put at the same strength (or alternatively at 4,000). The strength of these garrisons may have been deduced from the paper strength of the regiments in question. The garrison of 'Akka could not be moved (3-4,000 men). The troops in the Biqā', afterwards brought to Lebanon, may

and might have overawed the Lebanon hill population. He should have concentrated at least the troops of Suleimān Pasha and Osmān Pasha and his own. It would have been easy to join with them the garrison of Saida, and not impossible to add the troops of Tripoli. Ibrāhīm's motives in disposing his forces as he did are not clearly ascertainable from published sources of information. Assuming that Mohammed 'Ali ordered him to remain on the defensive, his policy was still mistaken. His expectation that a combined French and Egyptian fleet would soon drive away the invaders may have blinded him to his danger. In the beginning of October, three weeks or more after the landing of the Turks, he attempted too late a partial concentration. Possibly he had left out of his calculation such bold and skilful strokes as those of the British commander, Commodore (Sir) Charles Napier. The rapid success of the allies was due principally to Napier's energy and clear-sightedness.

On the other hand, the keeping of the main part of the Egyptian army in northern Syria may be justified on the ground that it was needed there to guard against invasion from Asia Minor, and the general choice of a defensive policy may be explained by Mohammed 'Ali's political aims and by his judgement of what was politically expedient. If a large part of the northern army, probably Ibrāhīm's best troops, had been marched to the neighbourhood of Beirut, the invader would have been compelled to retire and Syria would have been saved for the time. Sir Charles Napier gives it as his opinion that Ibrāhīm should have undertaken an offensive after his expulsion from Lebanon, as soon as his concentration at Zahleh was complete (end of October). After the capture of 'Akka (November 3) the allies ceased their offensive and the Turkish army was scattered in garrisons over the coast towns, as the Egyptian army had been previously. Sir Charles Napier was no longer in command.

The total number of Ibrāhīm's troops in Syria in 1840 has been estimated at 4,000-5,000. The current figure, 16,000, is inconsistent with the detailed figures of the engagements in which they fought.

been variously estimated. It is put as high as 85,000 (e. g. by General Iochmus, Commander-in-Chief of the allied troops in the latter part of 1840). On such an estimate Ibrāhīm's handling of his troops is quite incomprehensible. The allies when they landed were only 7,000 strong, and in the end their army did not exceed 20,000 régulars. Native estimates (e. g. those of the Druse emir Beshīr and the Mufti of Jerusalem), and inferences from the paper strength of the Egyptian regiments are of no serious value; 35,000 or 40,000 may be admitted as possible maxima, though 30,000 may be closer to the facts. After deducting the army of northern Syria (say 16,000) there may have been a total of 14,000 in the garrisons of the coast towns and in the field army. The most trustworthy figures are those of the strength of Ibrāhīm's army when it returned to Egypt, 20,000-25,000. Allowing liberally for losses by desertion and capture an original total of 35,000 or even 40,000 may be reached, but not 85,000.

Part of Ibrāhīm Pasha's army of invasion in November 1831 marched by land from Egypt, following Napoleon's route, part was transported by sea. When the siege of 'Akka began (November 29, 1831) he commanded about 22,000 men. The Arabs of Palestine and the Druses and Maronites in Lebanon were friendly. None of the coast towns south of 'Akka had offered any resistance. The garrison of Gaza had fled, that of Jaffa had surrendered. 'Akka was defended by 2,500 or 3,000 excellent troops, chiefly Albanians and Mamluks (expelled from Egypt by Mohammed 'Ali). After a bombardment by land and sea (December 8-23) an attempt to storm a breach near the east gate failed. The engineer who had hitherto directed the siege operations (Chianti) was replaced by another (Romei). His mines were, however, skilfully countermined, the winter rains filled the trenches and softened the ground, the fleet was injured by gunfire and battered by storms, and withdrew to Alexandria. At last another bombardment (March 3-9) and the explosion of a mine opened a more promising breach. Through it the outer wall was stormed and the second rampart was sur-

mounted (March 10). But the defenders had prepared their counter measures. By the explosion of a mine and rifle fire from the houses they drove the assailants out with a loss of 200 men. A long period of further preparation for the next attempt (May 27) now followed. In the interval, at the end of March, 400 Albanians deserted the garrison.

Meantime Turkish troops advanced from northern Syria to the neighbourhood of Tripoli, where there was already an Egyptian garrison. Ibrāhīm Pasha drove them away with troops from 'Akka and moved towards Hama, where the Pasha of Aleppo commanded the Turkish army of northern Syria. After a skirmish with a detachment of these troops near Homs, Ibrāhīm stationed a large part of his army (?15,000 men) in a fortified camp at Ba'albek. In this way he held the Pasha of Aleppo in check while the siege of 'Akka was completed.

The final assault on 'Akka (Sunday, May 27, 1832) was directed against three breaches in the eastern wall. It commenced at daybreak. The breaches were quickly gained by the assailants. But, afterwards, for most of the day the garrison fought with desperate bravery to recover their lost positions and to prevent the capture of the ramparts on the north side. The personal bravery of Ibrāhīm helped notably to secure his victory. About 5 o'clock in the afternoon the fighting ceased and the garrison surrendered that same day. The Egyptian casualties in the last assault were announced to have been 512 killed and 1,429 wounded. Their losses during the whole siege are said to have been 4,000 killed and wounded and 2,000 deaths from disease. There were still ample stores of food and military requisites in the town, so that the smallness of the garrison was the chief cause of its defeat.

All Syria now welcomed the conqueror. Damascus was occupied on June 15, being abandoned by its pasha and garrison. Ibrāhīm, having assembled a large part of his forces, advanced to give battle to the Pasha of Aleppo (Mehemet Pasha), now encamped beside Homs. Another Mehemet Pasha, commander of 10,000 Turkish regulars, joined the

Ottoman army on the day of the battle (July 8). The Ottomans (20–22,000) were, therefore, numerically superior to the Egyptians (16,000). But they were not homogeneous nor under a properly unified command. They were also badly posted and the best troops (the Turkish regulars) were tired and hungry. Ibrāhīm's plan was to encircle his opponents' left wing. The Turkish commander attempted a bayonet charge with the infantry of his centre. When this failed a large part of the army broke and fled. The fighting was over in $3\frac{1}{2}$ hours.

The Turkish regulars who fought at Homs were part of an army which had assembled in Asia Minor under the command of Husein Pasha. Their separation from the rest of the army, which lay by Esh-Shughr, was a blunder due to the incapacity and impetuosity of their commander (Mehemet Pasha) and was against the express orders of Husein Pasha. By it the Turks lost their chance of engaging the Egyptians with an advantage both in quality and number of troops. When Husein Pasha heard of the disaster at Homs he drew back to the 'Iron Bridge', then to Aleppo and finally to the Beilān pass, for the defence of which he gathered about 17,000 men. Ibrāhīm Pasha, after a delay of nine days in Aleppo, attacked the Turks at the Beilān pass on July 30. The Ottoman troops on the left, being threatened by a well-planned turning movement, abandoned their ground and were speedily followed by the remainder of the army. Although the Turks everywhere had the advantage of high ground Ibrāhīm gained the summit of the pass in three hours. The Turkish army was completely demoralized by the defeat at Homs and by the panic flight which had followed. Husein Pasha might, perhaps, have saved the situation by holding his ground at Esh-Shughr and collecting the remains of the beaten army there. Even the portion of the army which remained with him, if well posted, should have been sufficient to hold Ibrāhīm in check for some time. His retreat to the Beilān pass demoralized his army further and threw away material and men which should not have been lost.

Ibrāhīm's further campaign in Cilicia and Asia Minor was equally successful (victory at Konieh, Friday, December 21, 1832), and when peace was signed (April 8, 1833) Syria was formally granted to Mohammed 'Ali. The causes of the rapid revulsion of Syrian feeling against the Egyptian Government have already been explained. In 1834 there was rebellion in Palestine, in 1838 a formidable insurrection of the Druses of the Haurān, in 1840, worst of all, an almost unanimous revolt of the Druses and Maronites and Moslems of the Lebanon hills. Before this last, hostilities between Mohammed 'Ali and the Sultan had again broken out. The only considerable battle was fought at Nizib, slightly to the east of 'Aintāb, on June 24, 1839. Ibrāhīm Pasha commanded the Egyptian army, which was somewhat superior to the Turks in numbers and artillery and possibly in training. The Kurds in the Turkish army and the Syrians in the Egyptian army deserted in large numbers at every opportunity. Von Moltke was in the Turkish camp, as one of three German officers who were military advisers of the Turkish general, Hāfiz Pasha. His account of what happened may be summarized as follows : On the 20th of June the Turks were in a strong position where Ibrāhīm was afraid to attack. On the 22nd he made a hazardous march round their left flank, by which he cut them off from their base (at Birejīk) and compelled them to adopt a much less favourable position. The Turks failed to use their opportunity of falling back on Birejīk or of attacking the Egyptians during their turning movement. On the 23rd Ibrāhīm Pasha rested and prepared his troops for the attack. The Turks unnecessarily stood to arms during three nights in succession. On the 24th Ibrāhīm struck at the Turkish left. His troops and guns were so disposed that his attack was prepared for by concentrated gunfire, while his own infantry were largely out of range of the enemies' fire. Von Moltke says that the Turkish losses from the cannonade were not great but that their lines were completely disorganized. The issue of the battle was decided in an hour and the Turks were in full flight in two hours. Moltke was afterwards told by Turkish officers that their men

had stood better and lost more heavily at Nizib than in the earlier battles of Homs, Beilān, and Konieh.

In July 1840 four European powers (Russia, England, Austria, and Prussia) decided that Syria should be restored to the Ottoman Turks. From August 12, British warships lay off Beirut, interfered with the movement of Egyptian vessels, and encouraged the revolt in Lebanon which had broken out in June. A period of grace allowed to Mohammed 'Ali expired on September 5. On September 10 a force of Turkish troops and English and Austrian marines, about 7,000 men in all, landed at Jūneh Bay, near Beirut. They were energetically and most ably led by Commodore (Sir) Charles Napier. They fixed themselves in a strongly entrenched camp just to the north of the Nahr el-Kelb. The friendly inhabitants of the hills were soon armed and became useful auxiliaries. A reinforcement of 1,100 Turks arrived on September 19, and other reinforcements later. Demonstrations were made from the sea against Jubeil and Haifa and Jaffa, with satisfactory results. Beirut was defended by Suleimān Pasha. He had 3,000 men in the city and 4,000 in a camp near at hand. These latter were Turkish deserters, many of whom soon transferred their allegiance back again. Osmān Pasha lay at Meirūba, in the hills, with a few thousand men brought from Ba'albek. Sir Charles Napier's first attack (on September 24) was made on an outpost near Beit Shehāb. The Egyptians made a poor resistance. From three or four hundred prisoners were taken, out of a force of 700 men. On September 26 Saida was bombarded and stormed and practically the whole garrison (3,000 men) were taken prisoners. The Druse emir Beshīr, Ibrāhīm's only supporter in the hills, now began to negotiate with the allies. A battalion of Egyptian deserters was formed. Sickness seriously diminished Ibrāhīm's effectives. In the beginning of October a concentration of his forces was in progress. Two thousand men were on their way from Aleppo, and Osmān Pasha was ordered to leave Meirūba. But the hillmen were on the watch. Osmān was attacked and routed on the night of his departure from

Meirūba (October 4). Out of 1,500–2,000 men 300 prisoners were taken. On October 8 Sir Charles Napier again advanced to Beit Shehāb, his intention being to attack Suleimān Pasha. There he encountered and defeated 3–4,000 men commanded by Ibrāhīm himself (October 10). The troops from Aleppo, although near, were delayed by the mountaineers. Suleimān Pasha sent four battalions, which may or may not have been engaged. After this defeat a concentration at Zahleh was ordered. Most of those in the camp near Beirut (2,000 men) now deserted (October 11). At Zahleh about 6,000 men assembled. About 2,000 deserters had already joined the invaders and 3,000 prisoners had been taken (Wood, in *Levant Papers* III.) Napier's estimate of 5,000 deserters and 5,000 prisoners shows how even his figures are sometimes above the mark.

In the latter part of October further movements were in progress. The garrison of Tripoli was withdrawn to the Biqā' (October 18) and the army of the north was concentrated at Aleppo. Presumably it was still Ibrāhīm's intention to hold Palestine and Damascus. But by the end of October he foresaw the possibility of a temporary evacuation of the whole country. The Syrians everywhere were hostile. It was difficult, therefore, to obtain supplies. The Turkish regulars had increased to 12,000, exclusive of Syrian auxiliaries. The Egyptian force at Zahleh did not exceed 10–12,000 men. On November 3, a great and unexpected calamity occurred. The fortress of 'Akka, so often long defended in recent years against powerful attacks, yielded after a three hours' bombardment by the British fleet. Part of the garrison fled and part surrendered. Perhaps it was this occurrence which finally decided Ibrāhīm to retire to Damascus. The army of the north left Aleppo on November 13 and Ibrāhīm retired from Zahleh on the 27th. By this latter date he knew that Syria was to be evacuated. On November 9, Mohammed 'Ali learned of the fall of 'Akka and before the middle of the month he had sent couriers to Ibrāhīm with orders that he should return to Egypt. In the beginning of December the preparations

for evacuation were stopped by counter-orders. There were prospects of a reconciliation with the Sultan and therefore of a more leisurely and undisturbed return through Palestine. It was not until the end of December that Ibrāhīm actually left Damascus, presumably after renewed instructions from Mohammed 'Ali, who had definitely resolved to abandon Syria and wished to have his Syrian army back in Egypt. For the purpose of the retirement Ibrāhīm divided his troops into five divisions. One under Suleimān Pasha, with the guns, returned by Akaba to Egypt. The others marched in succession along or parallel to the *hajj* road and round the south of Palestine to Gaza. They suffered severely from shortage of provisions and from the attacks of the Arabs. General Iochmus, Commander-in-Chief of the Turkish army, barred the way through Palestine. He wished to attack the Egyptians near Gaza, but negotiations were already in progress and the Syrian war was now ended.

CHAPTER V

INHABITANTS

DISTRIBUTION AND DENSITY OF POPULATION

THE latest official record (1914-15) makes the registered population of Syria 3,156,000. This does not include those who were not Ottoman subjects nor the Bedouin and is believed to be otherwise under-estimated. Assuming the Bedouin to be less than 400,000, the total population may be estimated at about three and a half millions. Lebanon is most densely occupied and the extreme south and south-east most sparsely. The north and east are generally speaking, less populous than the coast belt and western Palestine (as far as Beersheba). On the basis of the official figures the average density of the population is 43 per square mile. In the vilayet of Aleppo it is only 30 (pop. 657,000), in Lebanon 330 (pop. 407,700, not including Beirut), in western Palestine (as far as Beersheba) 119 (pop. 718,000). The average per square mile in the vilayet of Aleppo is 39 if 200,000 be added for the number of the Bedouin. The comparatively dense population of Lebanon is accounted for by its having enjoyed a special constitution, by its silk industry and by its proximity to Beirut. For some years before the war, however, its population was decreasing and in 1914 its inhabitants were probably fewer than 300,000. Perhaps a further deduction should be made from this figure on the ground that territory not properly belonging to Lebanon has been reckoned to it.¹

The largest towns in Syria are Aleppo, Damascus (populations 200,000 or more) and Beirut (180,000). Jerusalem, Homs, Hama and 'Aintāb range between fifty and eighty thousand,

¹ Cuinet makes the area of the province alternatively 6,500 or 5,790 sq. kil. (pop. about 400,000). The actual area seems to have been between 3,100 and 3,200 sq. kil.

and the following between twenty and forty thousand: Jaffa, Gaza, Hebron, Nāblus, Haifa, and Safed, in western Palestine, Tripoli, Lādiqīyeh, and Antioch, on or near the northern coast. In Lebanon, apart from Beirut which is not included in the province, Zahleh is the only town of some size (14,000). Everywhere most of the Syrian people live in hamlets or small villages. In western Palestine (to Beersheba) perhaps one half of the people live in places having populations of less than 300.

From an economic point of view three main elements in the population of Syria may be distinguished: (1) the peasants (*fellāhīn*) who live mostly in villages and depend upon agriculture (with fruit growing), (2) the population of the large towns, which is industrial in an oriental fashion, (3) the Bedouin pastoral tribes on the borders. The population of the smaller towns, being chiefly dependent on agriculture, may be added to the first group, which then includes about two-thirds of the whole population of the country. The number of the Bedouin is very uncertain. It probably does not exceed 400,000.

Townsfolk and Villagers

The distinction made in ancient times between *Towns* and *Villages* seems to have been based on the presence or absence of fortifications; the larger places usually stood on hills, the smaller might be hidden away in a valley or in the folds of the mountains. The modern usage of the words is based on the size of the community, so that the same place may be designated by different persons differently.

The sites for villages and towns are determined by two main considerations: facilities for defence and for obtaining water. The former consideration accounts for the ordinary choice of the top of a hill as the site; such a position commands a view of the surrounding country and renders a village in the normal warfare of the fellahin wellnigh impregnable; to add to this advantage the houses are built close together so as to constitute a sort of fortress. Cases are quoted from modern experience of villages being transferred from the

plain to the top of the hill with the view of obtaining better protection from Bedouin depredations. Where both advantages (defence and water-supply) cannot be combined, the latter consideration gives way to the former. Thus many villages are half a mile away from their wells; and in places villages are established where there are no springs, and where the water-supply is contained in open tanks or cisterns, which depend on the rainfall. The size of any settlement is ultimately determined by the water-supply.

Since, without a reasonable degree of protection from marauders, no community can exist, the area wherein it is possible for town and village life to be maintained depends very largely on the efficiency of the government at any particular time. Complaints occur in many books of travel of the inefficiency of the Ottoman Government, which by its failure to suppress the nomad raiders permits large areas, which might be profitably cultivated, to lie waste. It would seem doubtful, however, whether in these cases bad government alone is responsible; for it has been shown that the tendency to raid the cultivated lands varies inversely with the rainfall and the scarcity which want of rain produces among the nomads is largely the cause of their raids.

The tendency of late years has been to increase the population of the towns at the expense of the villages. Reasons given for this are the modern civil code, owing to which agricultural land has largely passed from communal ownership into the hands of individuals; and the ruin of native industries by the introduction of cheap manufactured goods from Europe. Thus in a village where a few years ago forty looms were at work only six were found by a recent traveller. Another reason is doubtless the better protection which the town affords. Thus many villages in the rich and fertile lands of the Haurān were laid waste by the Bedouin because the villagers declined to pay the blackmail called *khuwweh*, 'fraternity'; the people fearing further ill treatment then sought more secure abodes in the vicinity of towns more directly under Turkish rule.

In Lebanon the last quarter of a century has witnessed the growth of many villages into towns, partly owing to the return of emigrants who had made fortunes abroad, and partly owing to the increasing employment of the region as a summer resort. In Zahleh in 1885 the only stone building was a church; in 1909 there were large numbers of stone-built houses and a street called Brazil Street in memory of the fact that most of the house-owners had made their fortunes in that country. The facilities offered by railways account for the growth of some towns. Another cause of growth is sanctity, i. e. the belief that residence in the neighbourhood will be attended by some spiritual advantage. This may be joined to the recognition by wealthy communities outside the country that certain places have special claims on their benevolence. It accounts in the first place for the populousness of Jerusalem, and further for that of less sacred places, which still count as sanctuaries, such as Safed and Tiberias to the Jews, Bethlehem and Nazareth to the Christians. In the last of these cases it has been shown that sanctity is more than sufficient to compensate for the want of natural advantages. Competent observers held that owing to want of water it could never become populous. Its population of 3,000 in 1879 was regarded as unduly swollen by immigrants from regions which the Bedouin had rendered unsafe; and it was thought likely to sink again into insignificance when once the raiders had been checked. But by 1905 it was found to number 10,000 inhabitants.

The growth of population shows a tendency in places to repeople ancient towns and villages. So the Jebel Zāwiyeh, a cluster of low hills between the Orontes valley and the plain of Aleppo, contains a number of ruined towns, which date mainly from the fourth and fifth centuries, and are being reinhabited by Syrian fellahin. Between Hama and Aleppo several ancient cities are reoccupied by half-settled Arabs. Elsewhere in North Syria old settlements have been reoccupied by Kurds.

The size to which these settlements can grow is strictly

limited by the water-supply. Hence certain places which during the construction of the Hejaz railway were used as centres for distribution, and in consequence grew abnormally, have since sunk to the numbers which the local water-supply can maintain.

The decrease of the villages in some parts of Palestine appears to be compensated elsewhere by the foundation of new colonies, whether by immigrants from other parts of the country or from abroad or by the settling of the nomads. The Christians of Salt and Mādeba are praised for their cultivation; in five years they pushed the area of cultivation two hours' ride to the east. The traveller who reports this, visiting Qastal after five years, found that it was being cultivated, after having lain waste for a long time. The summer quarters of the Belqa tribes are gradually being filled up with fellahin, and even their summer watering-places are occupied by Circassian colonists. Regarding the Jewish colonies, which have reclaimed much waste land, see p. 189 f. The valley of the Orontes was formerly an Arab camping-ground, and is still frequented in dry seasons by a few sheikhs of the Hasaneh and the 'Anazeh tribes; but the bulk of the Bedouin have been driven off by cultivation.

Nomads

The principal Bedouin tribes in Moab and Gilead live in scattered camps, often containing as few as 20 tents together or less. Every father of a family has his tent, and as a rule five persons may be reckoned to a tent. A council of elders deliberates on the time and direction of their migrations, the settlement of which is the business of the sheikh. Especially where the Bedouin are owners of land, their movements are generally governed by rule, though raiding may take them into unfamiliar regions. There are, however, tribes which have no fixed haunts even at the time of the summer drought.

In October of each year, before the first rains fall, the larger tribes of the Haurān, the two branches of the 'Anazeh, the Wuld 'Ali, and the Ruweileh, leave their summer quarters for

the Syrian desert. This is the half-yearly march of the tribes, differing from the fortnightly change in the situation of the camp. The Wuld 'Ali take with them during their migrations many thousand head of camels; the goats and cattle are left behind in the Jaulān in the care of those members of the tribe who have elected to settle in the country. The grazing grounds of the Wuld 'Ali are becoming more and more restricted, owing to the encroachments of the Circassians and the immigration of peasants from Samaria.

As a rule the Bedouin make their raids on one another rather than on the sedentary population, who are protected by their villages. On long raids the plunderers will ride three hundred or four hundred miles to the scene of operations. May and June are the great seasons for raids; earlier than this the Arabs do not like to take away the mother camels, whose milk is required for the horses. Moreover the business of caring for young animals of all sorts is too engrossing to permit of much raiding.

To a considerable extent it has recently been a part of Turkish policy to assist the nomads to settle and substitute agricultural for pastoral life. Sometimes the lands on which it has been suggested that they should settle are too dry to admit of profitable cultivation. In spite of this difficulty all along the western edge of the desert (and especially from Hama to Aleppo) the Bedouin are beginning to cultivate the soil, and are therefore forced to establish themselves in some fixed spot near their crops. In the initial stages these new-made farmers continue to live in tents, but the tents are stationary. In places the Bedouin have low buildings which they use for storehouses. The sheikhs of the richer tribes have town houses in Damascus.

Where the Bedouin own agricultural land, it is largely their practice not to cultivate it themselves, but to employ fellahin for the purpose, who while employed enjoy their protection, are provided by them with instruments, and are allowed to appropriate a portion of the produce. The labour thus hired is more often Christian than Moslem. This is, or

was till recently, the case with the southern, central, and eastern lands of Palestine. The fellahin at times wander far in search of such employment.

The principles whereby land is held are very variable, and in parts of the country were undergoing rapid change in the years which preceded the war. The tendency is to treat land which is used for the cultivation of fruit and vegetables or flowers as private property ; such areas are ordinarily surrounded with walls and count as the possession of a family. Land which is used for the cultivation of cereals is the property (normally) of tribes ; there are cases where such land is annually divided among the branches of a tribe, with further subdivision among the smaller groups of these branches. Pastoral land in contrast to these has a tendency to be treated as ownerless, though the same tribes from year to year usually bring their flocks and herds to pasture there ; custom does not prevent a tribe from betaking itself to ground on which it is unfamiliar ; circumstances will decide whether in such a case it will put itself under the protection of another tribe more accustomed to visit the same area, utilizing one of several formulae known to Bedouin law.

The wealth of the nomad tribes consists mainly in camels, oxen, sheep, and goats, on which they pay tax to the Turkish authorities ; from the numbers which are quoted in official lists their wealth appears often to be considerable, though doubtless it varies very much from year to year, especially where owing to inter-tribal raiding it is apt to change hands frequently. Horse-breeding has largely been abandoned by the nomads, owing to the prohibition by the Turkish Government of the exportation of Arab horses. The purpose of the prohibition was not, of course, to discourage the breeding of these animals, but to retain them for use in the country or the empire.

INCREASE AND DECREASE

There are no statistics by which the birth or death rates or the rate of increase of the population may be determined.

Emigration has seriously drained the country for many years, and this, together with a high death rate, seems to have made the general growth of the population slow. On the other hand some of the towns of western Palestine have increased rapidly in recent years (Jerusalem, Jaffa, Haifa, Nazareth). Beirut has probably doubled its population since 1880 and the coast towns generally have grown in the same period (e.g. Tripoli and Lādiqīyeh). The growth of these and other smaller towns (Zahleh and Salt) is not, however, evidence of the general rate of increase. Many districts are quite stationary and others have largely decreased in population. The ease with which the population moves from one point to another, even within country districts, is a characteristic feature. The frequent changes of the seats of government (e.g. in the sanjaq of the Haurān) affect the populations of some of the smaller towns. Recently the influence of emigration has been most marked in Lebanon, the Jebel Ansariyeh, and the neighbourhood of Homs and Hama. The movement began amongst the Christians of Lebanon and was there due partly to the over-population of the district and partly to the influence of foreigners and foreign education. A special cause affecting Jews and Christians has been their liability to military service, following the revolution of 1908.

To what extent the population has been drawn from the villages to the towns cannot easily be estimated. It seems well attested that in recent times villages have been abandoned after a rainless season, when the inhabitants were either frightened away by raiders, or compelled to go elsewhere to seek a livelihood ; but there is reason for believing that such abandonment is in most cases temporary. It is asserted that the increased burden of taxation renders it more and more difficult for the peasants to live by agriculture ; but this seems to be true only of the less fertile regions, for example at Kerak any *fellāh* can earn 1,000–1,500 piastres a year, and has little occasion to spend money except to pay the capitation tax, or, since the Constitution, to buy himself a substitute for military service. In Lebanon

it is asserted that there is a scarcity of agricultural labour, owing to the vast scale on which emigration has taken place; yet here too we read of the growth of villages into towns. It is therefore probable that the exodus from the villages to the towns has in most cases simply left the villages at their original size, and that the appearance of a village being deserted has often been deceptive, the migration being for a particular season, in accordance with a practice which is common among the semi-nomad tribes. In bad years the peasants of the drier districts go to Aleppo to find work. To the south of the Haurān and in north-east Syria towards Aleppo and the Euphrates the traveller often comes across villages where the grain-bins stand empty and the houses are untenanted; if a villager happens to be at home, he says: 'We live here in years when there are harvests; other years we go to the cities.'

Of what may be called *internal migration*, i. e. the removal of whole communities from one part of the country to another, numerous cases are recorded. The great movement of Druses from Mt. Lebanon to the Haurān in the eighteenth century and again after 1860 is a striking instance. The present inhabitants of Umm Keis (Gadara) are settlers from Samaria. At Qastal (east of the north end of the Dead Sea) in 1905 some forty or fifty families from Jerusalem, Hebron, and elsewhere took up their abode in the ruins of an old city; in 1912 it was asserted that they were planning to return, life having proved harder than in their old homes through drought. In 1907, after the construction of the railway, the government settled about sixty families from Salt, Hebron, Nāblus, and other places at Ziza south of Qastal.

An interesting case of internal migration on a considerable scale, and one of which we possess a detailed account, is that which has peopled Mādeba. It is of special interest as bringing before us a community of Christian Bedouin, who appear to have preserved their religion from pre-Islamic times, at the same time maintaining various Bedouin institutions, including polygamy, though on a small scale.

Their original home was Kerak ; owing to a series of disputes with their neighbours they decided to emigrate and obtained permission from the Turkish Government to repeople a ruined city. The first tribe which thus emigrated was the 'Azeizāt ; they placed themselves under the protection of the Hamā'ideh, and were presently followed by two other Christian tribes. It appears that their migration gave great offence to their former neighbours, who however were unable to make their resentment felt owing to the protection which the tribes now enjoyed.

Minor cases of migration, confined to individuals or to families, are brought about by blood-feud, the Bedouin institutions rendering absence for three generations necessary before the feud can be allayed. Similar effects are produced by the Bedouin custom of punishing certain offences by permanent outlawry.

The growth of the Jewish population of Palestine in the nineteenth century, and down to 1914, can be more exactly estimated. In 1839 the Jews of Palestine were reported to number between eleven and thirteen thousand. In 1880 they are estimated to have numbered about 35,000, in 1900 about 70,000 and in 1910 about 86,000. This last figure is probably an over-statement. Ruppin, from whom it is taken, afterwards gave 85,000 as the number of the Jewish population just before the war. Beyond the borders of Palestine the largest Jewish communities are found in Aleppo (15,000), Damascus, (10,000), and Beirut (5,000).¹ In 1839 the Jews of Damascus were reported unofficially to number 5,000 and in 1873 the official estimate of the Jews of Aleppo was 5,000. Possibly in both cases women and girls are not included.

The Jewish populations of Safed, Tiberias, and Hebron are given by Ruppin (for 1914) as 8,000, 4,000, and 1,000 respec-

¹ The figures of 1839 are those of a Commission of the General Assembly of the Church of Scotland. The other figures, up to this point, are from A. Ruppin (*Jews of To-day*, 1913, and *Syrien als Wirtschaftsgebiet*, 1917). Probably 3,000 would be more accurate than 5,000 for the Jewish population of Beirut.

tively. In Hebron the Jewish community is not increasing, in Safed and Tiberias it would appear to have been stationary or decreasing for some years. The advance of the Jewish population of Palestine has taken place in the new agricultural colonies (to the extent of 10,500) and in Jerusalem, Jaffa, and Haifa.¹ The following table shows the increase in the three towns last-named :

	1839.	1875.	1881.	1891.	1904.	1914.
Jerusalem	5-7,000	13,000	13,920*	25,322*	41,000*	45,000 or 50,000
Jaffa	.	.	1880. 100	1895. 2,000*	1905. 5,500*	1910. 8,000 1914. 10,000
Haifa	.	.	1892. 450*	1895. 810	1908. 1,600*	1914. 3,000

Emigration

Syrian emigration is dated by some as far back as the year 1860. In 1876 a missionary asserted that for the ten preceding years the Syrian peasants had seen the fruits of their labours taken away by organized robbers, whence all who could get away left for Egypt and the large cities, so that the country was getting depopulated. In that year certain Syrian merchants are said to have 'discovered America' at the centennial exhibition, and from that time there has been a stream of emigration to Argentina, Brazil, Mexico, the United States, the Pacific Islands, Singapore, Australia, New Zealand, and the Transvaal. It was asserted by one well-informed writer that the emigration fever seized all classes; farmers, planters, mechanics, merchants, doctors, teachers, preachers, young men and women, boys and girls, and even old men and women were setting out in crowds for the El-Dorado of the West. As a company of peasants would pay high wages for an English-speaking boy or girl to go with them as interpreter, there was a premium on the English

¹ The figures of the following table marked * are taken from D. Trietsch, *Palästina-Handbuch*, 1912. He and others make the Jewish pre-war population of Palestine (and of Jerusalem) much higher than is probable. Cf. also p. 189.

language. The British occupation of Egypt in 1882 produced a further stream whose destination was considerably nearer home. The demand for English-speaking and English-trained doctors, lawyers, surveyors, engineers, clerks and accountants, for the Anglo-Egyptian military and civil service, after the British occupation, tempted the best-trained youth of Syria to go to Egypt. In 1907 the wealth of the Syrian residents in Egypt was estimated at £E.50,000,000 or one-tenth of the whole wealth of the country. The opening for Syrian dealers in Oriental wares and fabrics in North and South America, Mexico, and Australia, sent constantly increasing numbers to seek their fortune beyond the seas. Then steamship and emigration agencies visited the towns and villages, and by the praises which they bestowed on the United States, Brazil, the Argentine, &c., induced numbers to join the movement.

Of places in Palestine where emigration is common the most notable would seem to be Bethlehem; little colonies from this place, whose inhabitants are particularly enterprising, are to be found not only in America, but also in Hayti, Australia, East Africa, and other lands. In 1913 the emigration from the sanjaq of Jerusalem was estimated at 3,000, chiefly young men—Moslems, Jews, and Christians in about equal proportions. Quite recent writers also speak of a movement from Galilee. The chief centre of emigration would, however, seem to be Lebanon, which native writers usually describe in this context. It is calculated that the population of Lebanon diminished by at least one quarter (100,000) in consequence of emigration between 1900 and 1914. The long connection of the Maronites with Rome and the strong American influence have rendered the notion of emigration to foreign countries more familiar here than elsewhere. In 1905 emigration had taken place on so vast a scale that there was difficulty in obtaining the necessary labour for cultivation of the corn, the mulberry, and the vine. The population is mainly Christian; but large numbers of the sect called Metāwileh, who dwell in the province,

have also migrated especially to America owing to the difficulties placed in the way of their cultivation of tobacco, which for a time had brought them great prosperity. The Government monopoly rendered both sale and purchase by private contract risky, and while no tobacco was allowed to be used which did not bear the Government stamp, the price which the authorities paid the producers was insufficient to render the cultivation remunerative. After the monopoly had been in existence ten years, the land owned by the villagers had been sold to the merchants of the towns, or had become the property of money-lenders, while the cultivators had emigrated to America.

Statistics of the total number of the emigrants are not obtainable. In 1905, when the process had been going on for at least thirty years, it was calculated that a quarter of a million Syrians had emigrated during that period, about a quarter of the whole number going to the United States, 50,000 to South America, 25,000 to Central America, 10,000 to Australia, the rest to Africa, India, the Philippines, &c. In 1914 calculations varied from 570,000 to 1,000,000; the latter figure was, however, thought to include children born to the exiles.

For the Argentine Republic there are official figures. According to these the years 1880-90 together brought some 1,000 Syrian immigrants. From 1890 to 1897 the numbers did not exceed 100 annually, until the last year, which brought 1,000; 1906 brought 7,000; and 1909 over 7,000. The proclamation of the Ottoman constitution in 1908 did not, as might have been expected, reduce the immigration but rather increased it; this increase being due partly to the confusion which followed on that proclamation, partly to the objection to the military service which the Constitution enforced on the Christian and Jewish subjects of the Porte.

It is asserted that the Syrian immigrants into America rarely take any part in agriculture, preferring trade. In Argentina the original immigrants all followed this occupation, chiefly taking goods to villages where there was a lack

of shops, or to railway stations. The Syrian, it is asserted, is better at this business than any other race ; he is able to carry a weight of eighty kilogrammes on his back. This faculty is attributed in part to the primitive character of the appliances in Syria, where work is done by human beings which in more developed countries is accomplished with the aid of cranes and the like. When the numbers of the immigrants increased and there were as many as two or three hundred in a place, the more talented opened shops, or even factories, and organized labour, employing the others in various capacities ; thus the Syrians for a time formed close corporations. At a third stage they took to obtaining possession of forests or agricultural lands, and cultivating them like ordinary proprietors. Whereas then, in the two former periods, the Syrian immigrants had been regarded as birds of passage by the natives of Argentina, it was now recognized that they meant to remain, and this was confirmed by frequent intermarriage and the adoption by the Syrians of the customs of the country.

This new departure was of value to the immigrants in two ways. First it enabled the settlers to acquire wealth to a degree which would not have been possible to them as traders ; secondly it had the effect of uniting them more closely to the land of their adoption ; though many still made a point of retaining the customs of their native land in their new conditions.

Probably the history of the Syrian colony in Argentina does not differ seriously from that of the colonies in other countries which are open to immigration on a large scale. So a writer from the U.S. says ' in England and far more in America the Syrian is a familiar figure ; we know him chiefly as a factory hand or vendor of small needlework '.

The degree of absorption of the emigrants in the country to which they have gone is very variable ; in general the number who return, especially to Lebanon, is very great. In almost every village returned wanderers are found who speak English. The large number of Arabic newspapers and

journals maintained in America is evidence that many of the emigrants have no intention of permanently abandoning their nationality. These journals, which largely reproduce the matter issued by the presses of Egypt and Syria, serve to keep the wanderers in touch with the affairs of their native country.

Immigration

In Syria, and especially in Palestine and the Lebanon district, there is a permanent foreign population of missionaries and members of the religious orders which is continually being replenished by new arrivals. In addition, during the last fifty years there has been a considerable immigration of Jews and Circassians and a small but perceptible influx of Germans.

By far the most numerous of these immigrants have been the Jews, who have settled in Palestine and are the chief cause of the modern growth of Jerusalem and Jaffa. The net gain from this immigration between 1880 and 1914 is estimated at 40,000 (Ruppin). This number does not include the natural increase of the Jewish population (see p. 184) nor those Jewish immigrants who have not remained permanently in the country. The chief results of this immigration have been that Jerusalem has again become, predominantly, a Jewish town and that prosperous agricultural colonies, with a population of about 10,500, have been established throughout Palestine. The land belonging to these colonies in 1914 was about 90,000 acres in extent, of which 26,500 acres lay in S. Palestine, 20,000 acres in western Samaria and 43,000 acres in Galilee. The most populous of the townships or villages established in these colonies are Pethah Tiqwāh (pop. 3,000), Rīshōn le-Sīyōn (pop. 1,300) and Zikerōn Ya'aqōb (pop. 1,100).

The colonization movement, apart from temporary experiments which for one cause or another proved abortive, commenced in 1882. Agricultural colonies, worked by immigrants from Russia and Rumania, were in that year founded

in the neighbourhood of Jaffa, in Samaria, and in Galilee. The foundation of these colonies aroused considerable sympathy among the Jews of Europe and others, and various societies were founded with a view to encouraging their development; a conference of these societies held at Kattowitz in Prussian Silesia in November 1884 resulted in a concentration of further effort in this direction. In 1890, with the permission of the Russian Government, the Odessa Committee was formed, which endeavoured to furnish the colonies already formed or in process of formation with the necessary equipment. Liberal support was also given by Baron Edmond de Rothschild of Paris, who bought land to provide for the growth of the colonies already started and for the establishment of new ones. He appointed agents to assist the colonists, and allowed them to draw upon him almost without limit. He assisted and encouraged the colonists to improve their land and to introduce new forms of cultivation. He constructed for them great wine presses and wine cellars. Finally he transferred the administration of the colonies to the Jewish Colonization Association, an institution formed and endowed by Baron Hirsch. This society still continues to support the Jewish colonies in a systematic and effective manner.

The account given by Jewish writers of the progress of these colonies before the outbreak of the war is highly optimistic. Not only had the productiveness of the soil been largely increased by the improved methods of cultivation introduced, but the relations between the immigrants and the native population had become more intimate as the advantages arising from this increase to the wealth of the whole country came to be realized. Meanwhile the serious problem caused by the unemployment of the older class of Jews congregated in Jerusalem and other cities of Palestine was finding its solution partly in the need of labour which the new colonies produced, partly in the other wants which the growing prosperity of the colonists occasioned.

The recent Jewish immigration into Palestine has been

much helped and stimulated by what is known as the Zionist movement. Modern Zionism, in a broad sense, grew up under the influence of the Russian pogroms in 1881-2. The present organization dates from the first Zionist Congress, held at Basle in 1897. The movement was essentially one to promote the return of the Jews to Palestine, although some of its adherents desired most of all to see the establishment of a 'national home' for the Jews anywhere that might be available. The rejection of the British offer of land in East Africa, made in 1903, put an end to projects of settlement elsewhere than in Palestine. The first president of the Zionist organization, Dr. Theodor Herzl of Vienna, gave the movement for some years a political direction. He hoped to obtain from the Turkish Sultan a charter for the establishment of the Jews in Palestine and regarded this as an essential preliminary to really successful colonization. After it was found that no special terms could be got from the Turkish Government, Zionism devoted its strength to the systematic acquisition of land in Palestine and to the economic development of the existing colonies.

Many influential Jews are opposed to Zionism on the ground that it endangers the national rights which they have obtained in the countries of their adoption. They claim that Jews should be treated as the adherents of a special religion and not as all belonging to one and the same people.

Next to the Jews, in numbers, come the Circassians, who, since 1880, have settled at various points along the eastern borders of Syria (sanjaqs of Aleppo and Homs, districts of the Jaulān and 'Ajlūn, sanjaq of Kerak). They have already twice left their homes, in the Caucasus and in Bulgaria, in order not to be subject to Christian rulers. They were established in Syria with the approval and assistance of the Ottoman Government, and are said to number altogether about 20,000. They have brought under cultivation land previously unoccupied and have greatly improved some parts of the frontiers of Syria. Their advent has gone hand in hand with the imposition of Turkish rule on the Bedouin,

whose freedom in the matter of raiding they have greatly restricted.

The German Templar colonies in the neighbourhood of Haifa, Jaffa, and Jerusalem were established by immigrants who came to Palestine under the influence of peculiar religious views. They belonged to a Christian sect ('the Temple'), which was formed in Würtemberg about 1854 and exists now practically only in Palestine. Their chief settlements with the dates of their establishment are Haifa (1869), Jaffa (1869), Sarona near Jaffa (1872), Jerusalem or Rephaim (1874), Wilhelma (1904), between Jaffa and Ramleh, and Beit Lahm (1906), between Haifa and Nazareth. At first the settlers were weakened by internal dissensions and financial difficulties and by the inevitable hardships imposed by the climate and the conditions of the country. Twenty years passed before they could be said to have overcome their initial difficulties. In 1879 they admitted to the colonies Germans who were not members of the Temple. After the Kaiser's visit, in 1898, they obtained useful financial support from Germany on the ground that they represented German interests in Palestine. The first settlers numbered about 250, in 1878 they had increased to 850 and in 1903 to 1,371 (of whom 1,116 were Templars). A considerable part of these settlers are townspeople (shop-keepers and craftsmen) but they have also been pioneers in agriculture and in wine-making and in this way have contributed materially to the progress of the country.

RACE AND LANGUAGE

Racial Conditions

The frequency with which Syria has been subdued and governed by foreigners is a remarkable feature in its history. Equally striking is the smallness of the contribution which these foreigners have made to the racial character of the Syrian people. The smallness of the occupying garrisons, as in the case of the Romans and the Turks, partly explains

the discrepancy. But the determining factor has been the continuous replenishment of Syria, in times of peace and war alike, from the tribes of the Arabian desert. This Arab infiltration has created and maintains the specific racial character of the population. The distinction between the Arabs and the Syrians, although important, is cultural rather than racial. The Syrian people are cultivators of the soil and dwellers in towns. They have native industries and, generally speaking, a civilization and a history that sharply mark them off from the Arabs. These latter, on the Syrian border, are a pastoral people organized in tribes and always disposed to war at the expense of their neighbours. Examples of transition from the nomad Bedouin to the Syrian fellahin, or peasants, may, accordingly, be seen at any time all along the eastern border. Thus the Arab conquest of the eighth century was only the flood tide of a never-ceasing overflow from the desert into the cultivated lands of Syria.

Such elements of the population as the Ansariyeh and the Druses may preserve more purely than most the blood and customs of an early period. But they are not, therefore, distinct races. The native Christians, also, are a part of the same Syrian people as their Moslem neighbours. Even the Arabic-speaking Jews, as distinct from recent Jewish immigrants, cannot be very sharply distinguished in a racial point of view.

The oldest resident community would appear to be that of the Samaritans of Nāblus. They are the sole representatives of ancient Israel. They are said to be the tallest people in the country. Since the numbers of this community have been steadily dwindling, and at the present time are said not to reach two hundred, among whom the males are a considerable majority, it is unlikely that it has any future before it.

If M. Dussaud's conjecture be right that the Ansariyeh (or Nuseiriyeh) are to be identified with the Nazerini of Pliny, this would be the second oldest community that has maintained its identity in the country in spite of political vicissitudes.

It is generally agreed that the fellahin are in the main the descendants of the earliest known inhabitants of the land, the Canaanites, found there by ancient Egyptian and afterwards by Israelite invaders. Their relation to such invaders was not unlike that which in many places up to the commencement of the war subsisted between them and the Bedouin. In the different parts of the country they have been racially affected in various degrees by immigrants. Thus the population of Gaza is said to be distinguished by darkness of complexion due to the presence of Philistine and Egyptian elements. The inhabitants of Ludd are fairer and more like those of Hebron.

It does not appear that the fellahin throughout the country retain any recollection of earlier nationalities which they constituted in historical or pre-historic times, although there are numerous local varieties of dialect whose differences may, in fact, be due to the influence of earlier languages (such as Aramaic). The survival of the Christian religion in some places and the Aramaic vernacular of the villages of Ma'lūla, Bakh'a, and Jubb 'Adīn are also traces of former historical conditions.

A negro element is found in the dark-skinned, thick-lipped people who inhabit the torrid Ghōr on the east side of the Dead Sea and its southern end. Their presence is attributed by some to a settlement from the Sudan, by others to the introduction of negro slaves purchased at Mecca or Jiddah by pilgrims, and retailed at Ma'ān. Their frequency in the Ghōr is accounted for by a process of natural selection. Individuals with thick lips, curly hair, broad noses, and dark skins are better fitted for life in the fierce perpetual heat than are those of the ordinary Arab type.

Traditions about the immigration of ancestors at the period of the Arab conquest are not to be relied on. The Druses profess to be able to name the Arabian families whence they are descended, but their tables inspire no confidence. The special Druse type is quite explicable on the ground of their lengthy isolation in the mountains. Again, we are told by

a foreign consul that in and about Damascus you may see the finest Arab population that can be found anywhere and that they are the descendants of the original invaders, who came up on the first great wave of the conquest, and have kept their stock almost pure. This is not really credible, since Damascus was for nearly a century the capital of the empire, and, after it had ceased to hold that position, endured for centuries violent political changes and catastrophes. Each of these was of necessity accompanied by some shifting in the constituents of the population ; and the same is true of other cities.

It is generally agreed that the Jews, originally an Oriental people, have in course of time largely absorbed racial elements from the European countries in which they have lived for centuries. Palestine is now a gathering-ground for the numerous Jewish types that have been evolved in other lands. Quite a small part of the Jews of Syria are descended from the ancient communities which still existed, for example in Damascus, at the date of the Arab conquest. Until 1880 most Syrian Jews were descended from the Sephardim, or Spanish Jews, who settled in the Turkish empire in the sixteenth century and received then a cordial welcome from the Turks. In the seventeenth century they were joined by considerable numbers of Ashkenazim, or Yiddish-speaking Jews, from Central Europe. Most of the Jewish immigrants since 1880 have been Ashkenazim from Russia or Rumania. But some have been Sephardim from Bokhara, Persia, Yemen, North Africa, and elsewhere.

The most obvious foreign elements in the population of Syria, besides immigrant Jews and Circassians (pp. 189-91), are Turks and Turkomans, Kurds, Armenians, Persians, and various Europeans.

In most parts of Syria the only Ottoman Turks, during the period of their government, were soldiers and officials. There is, however, a Turkish-speaking territory in northern Syria with a population estimated at about 80,000. Killiz, north of Aleppo, lies within it and the coast-line as far south as

Ras el-Baseit, just to the north of Lādiqīyeh. There have been some recent cases of Turkish immigration e.g. from Bulgaria to Masyād and from Crete to Sālihīyeh, near Damascus. The Turkomans are roving pastoral tribes of Turkish race, similar in some respects to the Bedouin. They are found mostly in the vilayet of Aleppo but also on the eastern borders farther south (e.g. near Homs and Ba'albek and in the Belqa). There are only a few thousands of them altogether. Sometimes they settle down and become part of the sedentary population (as in Aleppo and Homs).

The Kurds are found chiefly in the vilayet of Aleppo, where they have been restive and troublesome under Turkish rule. There are Kurds in the Jebel Ansariyeh, who now speak Arabic, and some in Hama and Sālihīyeh.

Armenians are found, to a limited extent, in Aleppo, Damascus, Beirut, and Jerusalem, engaged in trade and commerce. They are most numerous in the vilayet of Aleppo. A small number of Persians also carry on business in the larger towns.

Europeans (and Americans) reside chiefly in the coast towns (e.g. Beirut, Haifa, and Jaffa) and in Jerusalem, but also in Damascus and Aleppo. They are largely members of religious orders or agents of missionary or educational societies; the remainder are engaged in trade and industry.

It may be of interest to note that small numbers of gipsies (Nawār) have their homes in Syria.

Language

One of the ancient languages of Syria, Aramaic or Syriac, is still spoken in a few villages, Ma'lūla, Bakh'a, and Jubb 'Adīn, near Damascus. The dialect differs very considerably from the vernacular Syriac of the Nestorian Christians in Persia and Kurdistan, so that the communities are not mutually intelligible. The dialect of these villages is said to be largely mixed with Arabic, and is never written. Classical Syriac is here and elsewhere used in the liturgies of some of the churches.

In the Jewish colonies Hebrew has been revived, and is said

to be making steady progress. When families began to multiply in the new colonies, 'it was recognized that the only means of dealing satisfactorily with a heterogeneous mass of children coming from all points of the compass and speaking a score of tongues, was to give them a common language.' Of Hebrew the immigrants all knew something, and there were strong national reasons for making it the language of the Jews restored to Palestine. The first school where it was used as the language of instruction in all subjects was the Higher Grade Girls' School in Jaffa, and it has thence spread to other schools, including kindergartens. The Odessa Committee, which founded several of these institutions, subsidizes Hebrew libraries and newspapers and publishers of educational and other works in Hebrew. A Teachers' Union has 'codified and elaborated a Hebrew educational terminology'. The employment of this ancient language as a means of expression for modern needs was prepared for by reformers in Germany and Russia during more than a century, by the translation into Hebrew of modern novels and by the establishment of a periodical press. It is hoped to crown the system of Hebrew education in Palestine by the establishment of a national university in Jerusalem.

Turkish has been the language of the rulers of Syria ever since the rise of the Mamluk dynasties of Egypt, who succeeded to the Ayyubids in the thirteenth century A. D. It was, however, at no time used in either Egypt or Syria much outside court and official circles, though Mohammed 'Ali seems to have tried to make it a medium of education, and recently the 'Young Turks' aroused opposition by endeavouring to make it the language of the whole Ottoman Empire. The Turkomans speak a Turkish dialect and the native language of the Turkish inhabitants of northern Syria is Ottoman Turkish.

Other foreign languages used in Syria to a small extent are Kurdish, Armenian, and Circassian. The languages of the Jews, in addition to Hebrew, are chiefly Yiddish (Judeo-German) and Ladino (Judeo-Spanish), in about equal measure, also Arabic, Bukharic, and Persian.

The European languages most taught in schools and understood by educated Syrians are French and English. In 1909 the Electric Tramway Company of Beirut required its conductors to have a knowledge of either French or English, in addition to Arabic. The influence of the German Templar colonies and the fact that many Jews speak or read German has given German some prominence in Palestine.

Since the Arab conquest Arabic (Syrian Arabic) has been the common language of the country. It is spoken with considerable dialectical variation in different parts (e. g. in Lebanon, Damascus, and Palestine). But only the Bedouin, on the borders, speak an Arabic so peculiar as to be almost unintelligible to the Syrians proper. The general literary language is Arabic, which Christians, Jews, and Samaritans even write in their own scripts, especially in the case of religious works. The Arabic script is also employed for the other Islamic languages, with only slight modifications.

Probably the secular literature of the Moslem Arabs is regarded as the national possession of all those whose native language is Arabic, whatever their religion ; and Christian institutions, such as the Jesuit College of Beirut (the University of St. Joseph) have done much for the scientific editing of secular Moslem texts. Two members of the Greek Catholic community, the Yāzījis, father and son, are famous as imitators of and commentators on this classical literature. Controversial literature, in the sense of theological treatises directed against Islam, was not tolerated by the Ottoman Government before the proclamation of the constitution ; and the experiment of a perfectly free press, afterwards, was only continued for a brief period ; but between the Christian sects there has been a considerable amount of controversy conducted in Arabic, as the common literary vehicle of the communities. The efforts of European and American missions have been directed towards supplying translations of the Bible and other religious literature in Arabic ; and they have also done much to furnish Arabic manuals for the instruction of the natives in modern science.

Owing to the fact that Syria has long been directly governed from Constantinople, whereas Egypt has always been less dependent on the Ottoman capital, and even, since the rise of Mohammed 'Ali, founder of the present dynasty, practically independent of it, there has been, on the whole, less literary activity in Syria than in Egypt; editions of Arabic classics, though not altogether wanting, have been produced in far smaller numbers, and the original productions have rarely had more than local or provincial interest. Since the British occupation of Egypt the literary talent of Syria has found greater scope for itself in Egypt than in Syria. Even earlier in the nineteenth century the encouragement given by some of the Khedivial family attracted gifted Syrians to Egypt.

EDUCATION

Previous to the nineteenth century such schools as existed in Syria were almost confined to the education of Moslem *'ulema* and Christian priests. The movement to provide education for the laity was initiated by American missionaries and quickly extended by the religious orders of the Roman Church. Their success stirred the native Syrian Churches to emulate their example and in time the Turkish Government authorized a national system of education, in other words established a scheme of elementary and secondary Moslem schools. At the beginning of the twentieth century the government schools were by far the most numerous but the number of their pupils was not greatly in excess of those in the various Christian schools and the education they imparted was much inferior. The Jews, in proportion to their numbers, were well provided with schools of their own and were steadily improving the quality of the instruction given. The higher education of the country was almost wholly concentrated in Beirut, where the leading institutions were the American (Protestant) College and the (Jesuit) University of St. Joseph.

The religious orders, collectively, have a larger number of schools and pupils than the Protestant societies have.

Amongst these orders the Jesuits hold the foremost place, owing to their strong position in the centre and north of Syria. In conjunction with the Maronites they control a large part of the primary education of Lebanon, and in Beirut the University of St. Joseph is directed and staffed by them. Previous to the building of a college in Beirut (1875), Ghazīr, in Lebanon, was their chief educational centre (from 1848). There is still a theological seminary there. The University of St. Joseph includes a large preparatory department in which instruction is given on the standard of a secondary school. The power to grant degrees was conferred on the university by Pope Leo XIII in 1881. A school of medicine was established by the authority and with the help of the French Government in 1883. Since about 1896 its diplomas qualify their holders for medical practice in France. The staff of the university includes some whose reputation as scholars is world wide and numbers in all 80-90 teachers.

The Lazarists come next to the Jesuits in the number of their schools. They have high schools at 'Antūra (in Lebanon, founded 1834) and Damascus and a mission in Jerusalem. The Franciscans carry on work in Palestine as well as in other parts of Syria. They have a good high school in Aleppo. The *Frères des écoles chrétiennes* take an important share in providing education in Palestine and elsewhere.

Of the Roman Catholic sisterhoods the *Sœurs de St. Vincent de Paul* and the *Sœurs de Charité* conduct many schools and orphanages. Along with them the *Dames de Nazareth* and the *Sœurs de St. Joseph* may be named.

These various orders are very largely French in their membership and influence. A French agency that has no specific religious character is *La mission laïque française*. In 1909 it opened a college in Beirut which was intended to rival the University of St. Joseph.

The Presbyterian Board of Missions of the United States is the principal Protestant agency in the centre and north of Syria and the American College in Beirut, which is supported by it and derives its charter from the State of New York,

is perhaps the most influential educational institution in Syria. The American College was a development of a school established at 'Abeih (in Lebanon) in 1846. The transference to Beirut took place in 1866. The medical school was opened in 1867 and a school of commerce in 1900. Previous to 1880 all instruction was given in Arabic, since that date only in English. Three-quarters of the students are Christians, the largest proportion being adherents of the Greek Orthodox Church. As in the Jesuit College a large part of the students are enrolled in a preparatory department. The progress of the college is shown by the following figures of enrolment :

	1869-70	1880	1890	1900	1903	1906	1909
Faculties of arts and medicine	77	69	94	171	236	248	318
Total enrolments	77	108	228	435	629	769	876

The diplomas granted by the college up to 1906 were 300 in arts, 330 in medicine, and 162 in pharmacy. The staff in 1908 numbered 74.

The chief centres of the educational work of the Presbyterian Church of the United States are Saida, Beirut, Tripoli, and Lādiqīyeh. In 'Aintāb and Mar'ash important work is carried on by the American United Board of Foreign Missions. There is an American College at 'Aintāb, founded in 1874. There is still a theological seminary at 'Abeih. The work of the American missionaries for the education of girls deserves special mention. The first girls' schools in Syria were opened by American missionaries in 1830 (in Beirut and Lebanon).

As the result of a friendly arrangement between the Protestant societies British agencies carry on their work chiefly in Palestine and Damascus. The British Syrian Schools Society (founded in 1860) works, however, in central Syria. It conducts more than 30 small schools, mostly for girls, in the country between Beirut and Damascus. There are also Presbyterian schools (Scotch, English, and Irish) in Beirut, Damascus, Antioch, and Aleppo.

The schools of the Church Missionary Society are found in the chief towns of western Palestine, and at a few centres

east of Jordan. The number of pupils in these schools shortly before the war was reported to be about 2,500. The educational work of the society commenced about 1870 and one of its early schools was a girls' school in Jerusalem (founded 1873, afterwards removed to Bethlehem). The society now supports the English College in Jerusalem and Bishop Gobat's school (founded by Bishop Gobat in 1855 and transferred to the C.M.S. about 1876). The St. George's Boys' School (St. George's College) is connected with St. George's Church, and is intended, especially, for better class children. The London Society for promoting Christianity among the Jews is another agency of the Church of England which carries on educational work. Its principal stations are at Jerusalem, Jaffa, Safed, and Damascus.

Next to the nationalities that have been named, the Russians supported the largest number of schools in Syria previous to the war. Their intimate association with the Greek Orthodox Church enabled them to establish and maintain their position.

The Jewish communities are inspired by an ancient educational tradition and their schools have enjoyed the generous support of individual benefactors and of associations which exist only to foster Jewish education. Prominent amongst these associations are the *Alliance israélite universelle*, representative of French culture, and the *Hilfsverein der Deutschen Juden*, whose members are German Jews. The first of the *Alliance* schools in Syria was opened at Beirut in 1878. The older rabbinical, or Talmud Tōrāh, schools are assisted by a society whose head-quarters are in Frankfort. One of the best of the schools founded by private benefaction is the Evelina de Rothschild school for girls in Jerusalem (opened 1868). There are numerous schools for Jewish girls in Palestine. The Jewish Colonization Association (ICA) gives valuable support to the communal schools of the Jewish colonies.

One of the best of the Jewish schools is the Theodor Herzl¹ school in Jaffa (founded in 1907). Another is the Lämél

¹ See p. 191.

school in Jerusalem. The Takhkemōni school in Jaffa (opened 1909) represents orthodox Judaism. There is a certain amount of duplication of Jewish schools, caused by the division between the conservative and the liberal sides of Judaism.

The provision of industrial and agricultural training is a valuable feature of recent Jewish enterprise in Palestine. An agricultural school at Jaffa (Miqweh Israel), conducted by the *Alliance israélite universelle*, was founded in 1870. The technical institute at Haifa, which was on the point of being opened when war broke out in 1914, will take a high place amongst the educational institutions of Syria. The use of Hebrew as the language of instruction in Jewish schools has been tried and is making good progress. Before the war the way for the establishment of a Hebrew University in Jerusalem had been well prepared.

In the face of all this activity of foreign agencies, the native Churches and the representatives of Islam have judged it needful to provide, themselves, education of all grades for the members of their communions. Possibly those Churches that are in communion with the Church of Rome, being helped by the religious orders, have succeeded best. The Greek Catholic College at Beirut (founded in 1866) is said to stand in the first rank of the purely Syrian institutions. The Greek Catholics also provide higher education at Damascus, Aleppo, and Zahleh. The Maronites have a tradition of learning independent of modern movements, although fostered by long association with the Church of Rome. Possibly their schools in the beginning of the nineteenth century were the best then existing in Syria. Their principal college is now in Beirut and was founded in 1875. The numerous schools of the Greek Orthodox Church are supported by funds which come from Russia. The leading Moslem colleges are two, both in Beirut and both established by private enterprise. One is known as the *Dār el-Funūn*. It was founded in 1880 by an Indian scholar, Mohammed 'Abd el-Jabbār Kheiri, and represents to some extent English

and American influence. The other, the Osmānīyeh College, founded in 1895 by Sheikh Ahmed 'Abbās, has more kinship with French culture.

Some European Governments have granted, from time to time, large sums of money in support of the schools which represent their interests in Syria. In 1900 the French budget included a sum of £32,000 (800,000 francs) for this purpose and in 1911 £40,000. In 1882 £6,000 was provided by the French Government for the establishment of a medical department in the University of St. Joseph, and since then a large annual grant has been paid for its maintenance. The Italian Government has also subsidized schools in Syria, especially since 1878, when Signor Crispi advocated this policy. In 1883 the amount granted was £3,200 (80,000 lire) in 1887 £60,000, and in 1910 £80,000. Some of the religious communities, as well as the Dante Alighieri Society, conduct Italian schools. The Austrian Government has made grants in support of Franciscan schools and the German Government has assisted the schools in the Templar colonies (p. 192).

RELIGION

At least three-quarters of the population are Mohammedans (Moslems) and the proportion is still greater if the Ansariyeh and the Druses are included. The Christians number, possibly, seven hundred or eight hundred thousand; the Jews considerably more than a hundred thousand. Amongst the Kurds are a few Yezīdis (so-called devil-worshippers). Moslems are subdivided into Sunnites and Shi'ites. The former are generally dominant in Moslem countries and are sometimes spoken of as orthodox. In Syria the Shi'ites are represented by several distinct communities. The Metāwileh and the Ismā'īliyah (Ismailians) are Shi'ites, also the Circassians and the Kurds. The Ansariyeh and the Druses, although distinguished by peculiar doctrines and practices, have important Shi'ite affinities. The fundamental difference between the Sunnites and the Shi'ites is their divergence regarding the khalifate. The khalifs recognized by the Sunnites from the

time of the first Ommayyad are held by the Shi'ites to have been all illegitimate. The Shi'ites expect a reincarnation of their last 'Imām' to resume the broken line of succession and they will not recognize any khalif whose title is based on descent or on inheritance from the 'Abbāsīte khalifs.

In Syria both the main division between Moslem and Christian (or Jew), and the subdivisions of the Moslem and Christian faiths constitute lines of cleavage that are more noticeable and influential than racial distinctions. Internal rivalries and conflicts arise from these and each separate religious association has a kind of tribal or political significance. The Ottoman Government, willingly or unwillingly, has treated the various Moslem and Christian communities as in a measure separate political entities

Christians

Of all the Christian communities of Syria the Maronite Church perhaps most directly represents the ancient church of the country as it was before the Arab conquest. Its adherents are also more numerous than those of any other communion (? 300,000). Two-thirds of them live in Lebanon and the remainder in some of the larger towns (Aleppo, Beirut, Damascus, Tripoli). Since the time of the Crusades they have been in close relation with the Roman Church and are now in full communion with it, although their liturgy is distinct and their clergy may marry. They were definitely recognized by the Roman Church in 1445 (Council of Florence) and received their present constitution in 1736. The language of their liturgy is ancient Syriac.

The name Maronite, according to some, is derived from Saint Mārūn, who is said to have died in A.D. 400,¹ according to others from Mārūn their first patriarch (A.D. 685-707). The official title of the head of the Maronite Church is Patriarch of Antioch and of the whole East. His residence is

¹ The Druses and Metāwileh, their neighbours, assert that Mārūn had only one eye; and if any one wishes to raise the ire of a Maronite, all he has to do is to put his hand over his eye.

in the monastery of Qannūbīn, in the gorge of the Qadīsha river, but in recent years the patriarchs have spent their summers in the monastery of Bdīmān on the top of the cliff opposite Qannūbīn, and their winters at Bkerki in the district of Kesrawān. Their revenues amount to several thousands of pounds annually, partly derived from a poll-tax of three piastres on each male member of the church.

The parish priests are elected by the people, who usually choose some one belonging to the district. Owing to the influence of Rome, celibacy is becoming the rule among them. At the monastery Deir el-Kreim, overlooking the Bay of Jūneh, there is a college of priests, known by a small red cross at the top of the cap, who act as itinerant preachers.

The Holy Orthodox Church (Greek Orthodox) comes next in point of numbers. Its adherents are found chiefly in the larger towns throughout the country. It was given special recognition by the Ottoman Government from the time of the Ottoman conquest, and until the nineteenth century the patriarch of Constantinople, as its official head, represented all the Christians of the empire except the Armenians. There is a patriarch of Antioch whose authority extends over the greater part of Syria (as far as Tyre and Safed), and a patriarch of Jerusalem. Both are ecclesiastically independent of the patriarch of Constantinople. The patriarch of Antioch resides in Damascus. The language of the liturgy is Greek but the people are Arabic-speaking Christians who dislike the intrusion of Greek priests.

The matters wherein the Orthodox Church differs from the Church of Rome are partly of doctrine, partly of practice; in some of both, though not in all, it agrees with the Anglican Church, e. g. permitting the communion of the laity in both kinds, and rejecting the doctrine of indulgence and purgatory. The chief matter wherein the Greek Orthodox and the Anglican communities are in agreement is their common rejection of the authority of the Roman Pontiff.

The Greek Orthodox community, though it is somewhat smaller in numbers than the Maronite Church, possesses a

larger number of dioceses, and is more generally distributed over the country.

Other Eastern Churches represented in Syria, but only to a small extent, are the *Jacobite*, *Armenian*, and *Nestorian* Churches (total membership not more than 60,000). Of these the Jacobites are most numerous. Before 1873 the Armenian Patriarch of Cilicia (Sis) represented in civil matters all Armenians who were Ottoman subjects, and also the Jacobites and Nestorians. When the Ottoman Government officially recognized the Jacobite patriarch many Jacobites chose to remain attached to the Armenian patriarch (both Churches being monophysite in doctrine). There is an Armenian patriarch in Jerusalem who has simply the jurisdiction of a bishop. The ecclesiastical heads of the Jacobite and Nestorian Churches live outside of Syria.

A title peculiar to the Jacobite Church is *Mafrian*, 'theoretically a sort of suffragan-patriarch to represent the Patriarch in the Far East, Persia, and Arabia'. The metropolitans (*Matrān*, plural *Matārīneh*) differ from the bishops (*Usquf*, plural *Asāqīfeh*) in being chosen from the monks, whereas the latter are chosen from parish priests who are widowers; these last are not eligible to the patriarchate. The parish priests must be married before ordination; they should keep their heads close shaven, and should wear a beard. Like the Maronites they retain the title *khūrī* or Chorepiscopus, which is usually given to the chief priest of a town. The term deacon (*shammās*) is applied to various officials with different duties, including readers and singers. The deacons (and probably some of the priests) carry on some trade in addition to their clerical duties.

The language of their services and of their theological literature is classical Syriac; otherwise their language is Arabic, which they often write in Syriac characters; it is then called *Karshūnī*, a name of uncertain origin.

Uniate (Catholic) Churches. Of the five Eastern Churches already mentioned, only the Maronite Church is in communion with the Church of Rome. In consequence of Roman propa-

ganda, however, seceders from the other Churches have now organized themselves into separate communions, recognizing the authority of the Pope but retaining their ancient liturgies and diverging from the general practice of the Roman Church in many particulars. There are thus what are called Uniate (or Catholic) Greek, Armenian, Syrian (i. e. Jacobite), and Chaldean (i. e. Nestorian) Churches.

Of these the largest is the Greek Catholic (or Malchite) Church. It has about half the membership of the Greek Orthodox Church. Its chief dignitary in Syria is the Patriarch of Antioch, who resides in Damascus. It was organized as a distinct communion early in the eighteenth century.

The line of succession to the patriarchate of Antioch, as recognized by the Greek Orthodox and the Greek Catholics, is identical until 1724. Up to 1857 the Greek Catholics followed the Eastern Calendar, which is twelve days later than the Roman ; it was not, however, till 1865 that the Roman Calendar, introduced by the patriarch in 1857, was generally adopted within the community ; its introduction was at first the signal for a new schism. Further accommodation to Roman practice has, it is said, been creeping in without official introduction ; thus though no pressure is supposed to be put on those who are in training for the priesthood not to marry, in fact they rarely take this step.

The Uniate Syrian Church (Syrian Catholic) may number 50,000 adherents, who are spread over Syria and are more numerous than those adhering to the monophysite communion. Their patriarchs, who resided for many years in Mārdīn, now live in Beirut, and are officially styled patriarchs of Antioch (date of first appointment 1783).¹ The Armenian and Chaldean Catholics, found chiefly in the vilayet of Aleppo, are small religious bodies.

Latin Church. The members of the Latin Church (Roman

¹ It may be noted that there are two patriarchs of Antioch (Greek Orthodox and Syrian Catholic, the former resident in Damascus) and three patriarchs of Antioch and of all the East (Maronite, Jacobite, and Greek Catholic, the latter also resident in Damascus).

Catholics in the narrowest acceptation) are mostly Europeans or members of the religious orders, and are few in number (15,000 ?). If, however, the membership of all the Churches in communion with Rome be taken together it includes more than one-half and possibly three-fifths of the whole Christian population. There is a Latin patriarch of Jerusalem, whose jurisdiction extends over Palestine, and an Apostolic Delegate who resides at Beirut and represents the interests of the Roman Church in the rest of Syria.

Of the religious orders which conduct mission work in Syria mention may be made of the Franciscans, Carmelites, Jesuits, and Lazarists, and of the Sisters of St. Vincent de Paul and the Sisters of St. Joseph as among the more important. The *Frères des écoles chrétiennes*, the Dominicans, and the *Missionnaires d'Afrique* and others are also represented.

Protestant Churches. The members of the Protestant Churches are also few in number (10,000–15,000). Native converts have been gained chiefly by British and American societies. The former (Church Missionary Society, London Society for promoting Christianity among the Jews, United Free Church of Scotland, Edinburgh Medical Mission) are prominent in Palestine and Damascus ; the latter (Presbyterian Church of the United States) in Beirut, Lebanon, and central Syria generally. There is an Anglican bishop resident in Jerusalem; Previous to 1887 he was appointed by the Queen of England and the King of Prussia alternately. Three bishops held office under this arrangement (1841–81).

Protestant missions have been conducted in Syria since early in the nineteenth century, though for the first half of that period their activity was chiefly confined to educational work, proselytizing from the existing religious communities being on the whole discouraged. In 1848 the first Syrian Evangelical Church was organized in Beirut with eighteen members, including four women; by 1857 there were four such Churches in Syria with 75 members; by 1912 the whole numbers of the native Protestants had risen to about 10,000, said to be the result of the operations of some 38 European

and American agencies. The native Protestants do not form a single community, but a number of congregations, similar in type to those from which the missions to which they owe their existence emanate; hence the forms of Christianity existing in England, Scotland, the United States, Germany, Sweden, and Denmark are represented. At times, bodies of adherents to other Churches have made advances to Protestant congregations, or have even temporarily joined them, with a view to obtain concessions from their former community on condition of their return to it.

Jews

The Jewish sacred day of the week is Saturday, the Sabbath, whereon a religious service is held in the synagogue, and whereon no work whatever may be done; 'work' is classified by the jurists in 39 categories, and includes such operations as writing, kindling fire, &c. Their chief festival is Passover, during which leavened bread may not be used; minor feasts are that of Weeks or Pentecost, beginning on the fiftieth day counted from the second of Passover week, and lasting two days; Tabernacles, commencing on the fifteenth day of the Jewish New Year, and lasting nine days, the whole of which should be spent in a shed not quite impenetrable to wind and rain; Dedication, in commemoration of the Maccabæan victories, and lasting eight days (celebrated by the kindling of lights every evening of the festival); and Purim, in commemoration of the deliverance of the nation through Mordecai and Esther, lasting one day. The first ten days of the New Year are regarded as solemn; on the first two days trumpets are blown, whereas the tenth, the Day of Atonement, is celebrated by continuous fasting. Another fast day is the ninth of the month Ab, which is supposed to commemorate various disasters.

The Jewish calendar is lunar, but is accommodated to the solar by intercalation in certain years of a cycle of nineteen.

The chief Jewish official is the Rabbi, who not only provides the religious services of the synagogue, but is also consulted on religious questions. For the congregations of the sanjaq of

Jerusalem there are 237 Rabbis, with one chief Rabbi, who was recognized by the Ottoman Government as *Khākhām-bāshi*.

The Jews are divided into two main sects—the *Rabbanites*, to whom the European congregations normally belong, and the *Karaïtes*, who are chiefly found in Asia and Africa. The split appears to have originated in the eighth century. In theory the Karaïtes reject the Oral Tradition, usually called the Talmud, which with the Rabbanites forms the basis of jurisprudence. The two sects practise the same ceremonies, and observe the same feasts and fasts ; the Karaïtes maintain as against the others that the Levitical law of purity is not suspended in consequence of the destruction of the Temple, and that the same sanctity attaches to any synagogue or meeting-house for prayer as attached in ancient times to the Temple. In consequence the Karaïtes are frequently unable to enter their synagogues, which are apt to be empty at prayer-time, while the vestibule, of which the sanctity is less, is crowded. The observance of the law of purity in the household also leads to great inconvenience, and so does the seclusion of members of a household from each other and of the Karaïtes generally from the other sect. Further, the table of affinities prohibitive of intermarriage is greatly extended by the Karaite doctrine which makes marriage count as blood-relationship between the parties ; even divorce does not annul this relationship.

Mohammedans

The great majority of the inhabitants of Syria are adherents of *Islām* (*Mohammedanism*), with whom Jerusalem, and especially the Temple Area, counts as the second sanctuary of the world, next in importance to Mecca, on the ground that it was the spot of earth whence the Prophet ascended into heaven. The formal creed of all Mohammedans consists of the two propositions 'There is no god but (the true) God and Mohammed is the Messenger of God' ; they further recognize the duty of praying five times a day and celebrate public worship at noon on Fridays ; other important religious duties are the fast from sunrise to sunset in the month Ramadhān, and the pilgrimage

made once at least in a lifetime to Mecca, when the pilgrims also ordinarily visit the tomb of Mohammed in Medina. In addition, Moslems mostly celebrate as Feasts the first day of the month which follows on the fasting-month, and the tenth day of the pilgrim-month; there are besides other feast-days whose popularity varies.

The division of all Moslems into Sunnites and Shi'ites has already been mentioned (p. 204). The right of the Ottoman sultans to style themselves khalifs has always been denied not only by the Shi'ites but also by most Sunnites not subjects of the Turkish empire. Recently the pan-Islamic movement has tried with some success to foster amongst Moslems all over the world the idea that they should regard the Ottoman Sultan as in some sense their representative and head. The view, however, that the khalif is a kind of Pope is modern and is inconsistent with the past history of the office. The khalifs have always been, in theory at least, great Moslem princes.

The Sunnites are divided into schools, which differ on various points of law, especially ceremonial law; the Ottoman Government officially recognized the Hanifite school, named after Abu Hanifah, a jurist of the second Islamic century. The religiously-minded often belong to some order (*tarīqah*) which adds various practices to the ceremonies which the codes enjoin; the Shādiliyeh order, named after one Shādili who was born about A. D. 1200, is said to be widely spread in Palestine. Others that have a large following in Syria generally are the Qādiriyyeh, Rifā'iyeh, Bedāwiyyeh, Dusuqiyyeh, and Sa'diyyeh. The first of these represents the oldest order, and the descendants of its founder, 'Abd el-Qādir Jilāni, who left a family of 45 children, were exempted by the Turks from military service and enjoyed other privileges. The same exemption was extended to certain other saintly families. The Maulawīyeh, or dancing dervishes, have establishments in Damascus and certain other north Syrian cities. The Senūsiyyeh, who represent one of the most modern orders, are said to have some, but not many, open followers in Syria.

The members of the orders are in part persons who give themselves wholly to the religious life ; these are the minority. The majority consists of persons who follow ordinary avocations, but attend religious meetings, and perform certain rites. The meeting-houses are called *zāwīyehs* and *tekkīyehs* or *tekkes*, which also form the dwellings of the leaders of the orders, and those who are devoted to their service. The orders have mostly a somewhat elaborate organization with a hierarchy of officials. The doctrine which lies at the basis of all is Sufic pantheism, and the rites practised have the object of producing ecstasy, the state wherein the identity of subject with object and of both with the Deity is thought to be realized. The extent to which asceticism is enjoined and practised varies very much ; but most enforce a period of discipline on aspirants to membership.

In the matter of religious exercises there is great variety between the classes of the population and the social ranks within them. The most devout are probably the fellahin ; the least devout are the nomads. The practices of fasting and prayer are said to be more commonly observed by the nomads of the Negeb than by those of the east of Jordan ; and among the latter the Ruweileh are said to be the most devout, the Sherārāt the least so. The Turkish authorities in their endeavour to introduce orderly government into the territories occupied by these tribes have tried to teach and even to enforce religious exercises ; it is said, with little result.

In the towns the poorer population is usually more strict about their observance than the wealthier.

The *Metāwīleh* were a prominent and powerful political force in the eighteenth century, but are now much reduced in strength (? 25,000) and have become mostly peaceful agriculturists. They live in the qaza of Ba'albek, and in the Lebanon districts of Jezzīn, Meten, Batrūn, and Kesrawān. Their chief residence is in the region called Jebel 'Amūd of the Beshārah country, extending between the wādīs Awwali and Qarn, and divided into a northern and a southern portion by the Nahr Lītāni. The name *Metāwīleh*, which is said to be

modern, means 'friends', i. e. friends of 'Ali (sing. *Mutawālī*). The community traces its origin to a Companion of the Prophet, Abu Dharr Ghifārī, who is supposed to have first taught his doctrines in the villages of Sarafend and Meis. Their views are identical with those of the *Ithnasharis* of Persia, who believe in a series of twelve Imāms, of whom the last went into concealment in Samarra in the second half of the third Islamic century, and whose reappearance they expect. They differ from the Sunnites mainly on the question of the khalifate, which they hold fell by right to 'Ali; but there are also certain differences of law and ritual. They decline to sit at the same table with those who do not share their beliefs, will neither eat nor drink out of a vessel which has been used by such a person, and go far beyond other Moslems in intolerance.

It is not quite easy to account for the existence of this community in Syria under a series of dynasties which regarded its tenets as revolutionary, whence some suppose them to be comparatively recent immigrants, while others with some historical support assume that they normally concealed their opinions in accordance with a permission granted in the Koran, of which the Shi'ites make a liberal use. Some travellers declare them to be illiterate; but this reproach cannot well be justified, since for some years before the war they maintained a press at Saida, whence a series of valuable works was issued, and which also maintained a well-conducted magazine. In earlier times savants belonging to this community composed works which have acquired the status of classics among the Shi'ites of Persia and India, whither members of it have from time to time migrated, and where they have been rewarded with high office.

The *Ismā'īlīyeh* (Ismailians), numbering only a few thousands, reside in the hills west of Homs (Qadmūs and Marqab), and in the plains about Homs and Hama. They are relics of a society founded in the fifth Islamic century by Hasan Sabbāh at Alamūt in the neighbourhood of Qazwīn, in Persia, and were known in the history of the Crusades by the name Assassins.

They are a branch of the party which for about two centuries was dominant in Egypt and the neighbouring countries under the Fātimite dynasty. The schism started by Hasan Sabbāh aimed in the first place at a change of dynasty. The method of the society was to seize and occupy fortresses, and in Syria their strongholds were mostly in the Jebel Ansariyeh. In time their fortresses in Persia and Syria were taken from them by Mongol and Egyptian sovereigns, and the head-quarters of the sect were eventually transferred to India, where its head is called the Agha Khan. This potentate is recognized by the community in Syria and members of rival sects have an idea that he is a woman, who sends yearly to collect money, obtaining a few piastres from even the poorest. Little is known of their doctrines and practices. A traveller asserts that every female born on 27th Rejeb is supposed by them to be an incarnation of the Deity. She never works; her hair and nails are never cut, and she may not marry. Every man of the village wears a piece of her clothing or of her hair in his turban.

Since the Turkish occupation of Egypt and Syria little or nothing has been heard of any activities on their part in the way of 'assassinating', or of their hypnotizing themselves with the decoction of hemp (*hashish*) whence some authorities suppose their name to be derived.

Ansariyeh or Nuseiriyeh

The Ansariyeh (not more than 100,000) live in the hills of northern Syria (Jebel Ansariyeh). They have, besides, colonies outside this area, as at Mersina, Tarsus, and Adana. They have been a very insubordinate element in the Ottoman Empire and also under previous rulers of Syria. The name perhaps occurs in Pliny in the form Nazerini and may therefore be very old. At the present day it is generally derived from the Arabic name Nuseir, diminutive of Nasr. The sect was in existence at the beginning of the fifth Islamic century; and the doctrines cited as characteristic of it at that time are identical with those which are held by its adherents now. It is an extravagant form of Shi'ism, in which divinity is assigned to 'Ali son of

Abu Tālib, the cousin and son-in-law of the Prophet Mohammed, whom the Shi'ites regard as his sole legitimate successor. The Ansariyeh share with the Shi'ites their dislike of the three immediate successors of the Prophet ; but differ both from them and from orthodox Islam in substituting for the formula ' There is no god but God ' the attestation ' There is no god but 'Ali, son of Abu Tālib ', who according to them is eternal, unbegotten and unbegetting, is essentially the light, and constitutes the meaning of phenomena.

The sacred book of the Ansariyeh is called the *Majmū'*, or 'collected'. It consists of sixteen short chapters. It resembles various mystical forms of Islam, though assigning to various personages of importance a position which differs from that ordinarily given them. Besides 'Ali, who is God, it recognizes Mohammed as ' the Veil ', and one of Mohammed's adherents, Salmān the Persian, as ' the Gate '. The first letters of these three names ('*ain-mīm-sīn*') form a mystery which is communicated to proselytes, and serves as a symbol between the members of the sect. Religious importance is also attached to ' the five orphans ', personages ordinarily reckoned among the early followers of Mohammed, who are said to have created the world, and to the members of 'Ali's family, i. e. his wife Fātimah and his two sons.

Moderate as is the size of the community, it is divided into four sects : Heidaris, Shamālis, Kalazis, and Gheibis. The first of these takes its name from one of the titles of 'Ali, the second shows a tendency to sun-worship, the third to moon-worship, the fourth to worship of the air. To all the identification of 'Ali with the Deity is the main dogma ; their differences lie in the interpretation of various phrases and symbols.

They agree with orthodox Islam in the performance of prayer five times daily, and the number five has for them certain mystic values which are not usually recognized; they interpret the ordinance of the pilgrimage symbolically ; and unlike the orthodox they are addicted to the use of wine, which they employ in certain religious ceremonies.

In agreement with the Druses, but unlike most Islamic communities, they make no proselytes, a condition of initiation to their own community being that the neophyte should be of Nuseiri parentage on both sides. Only males may be initiated. Initiation is a lengthy process, and cannot be performed by the father or any relative of the neophyte ; it, however, creates between him and his initiator a relationship which counts as that of blood. The initiation has three stages which together require the period of about a year. Highly elaborate rules are given for the performances, especially the last, involving the presence of large numbers of persons ; it is not clear to what extent practice is in accord with theory.

The Ansariyeh hold the doctrine of transmigration, and indeed in a somewhat exaggerated form, as they believe that the pious are destined to become stars, whereas the impious will, in the migration of their souls, sink in the scale of animate beings, becoming mules or sheep, or even descend into the mineral world. The number of transmigrations through which a believer has to go before he becomes a star does not exceed seven.

The Ansariyeh have no special places of worship such as churches and mosques are, but meet on the occasions of their feasts in private houses, or according to some in the house of one of their number, who is called the Sheikh of the Faith. Important members of the community are bound, each of them, to select a day whereon he holds an assembly in his house, at which sacred texts are read ; and such a day is called a Feast. To a certain extent they agree with other branches of the Shi'ites in commemorating particular events on certain days ; of these the most important is 18 Dhu'l-Hijjah, the Feast of the Pond, being the day whereon Mohammed is supposed to have appointed 'Ali as his successor. The Ansariyeh amplify the account of this affair which is accepted by the other Shi'ites, in accordance with the technicalities of their particular system. 'Ali, according to them, was on this occasion designated by the name *ma'na*, 'the Meaning'. Like orthodox Moslems they celebrate the feast of Breaking

Fast, i.e. the first day of the month Shawwāl, which succeeds the fasting-month, and which they associate especially with the name of Mohammed. The Day of the Sacrifice (10 Dhu'l-Hijjah) is especially associated with the name of Ishmael, whom the Moslems ordinarily substitute for Isaac in the account of Abraham's sacrifice. The 21st and 29th of this month are also feast-days, commemorating occasions in the life of the Prophet Mohammed, wherein 'Ali played a part of some importance. On 10th Muharram, which with the Shi'ites generally is the most important day in the year, as it commemorates the death of Husein, the Ansariyeh take the opportunity to assert their conviction that this personage did not really die. On 9 Rabī' II they celebrate another Feast of the Pond, and in the middle of Sha'bān another feast in honour of Husein. Besides these they appear to have adopted certain Christian festivals, notably Christmas, and certain which belong to the Persians. For these they employ the calendars of the communities from which they have been taken.

Like other Shi'ite sects they visit the tombs of real and supposed saints ; one of the most important of these is Ja'far the Winged, brother of 'Ali. Two days after the death of a great sheikh a funeral feast is held, and when the guests have eaten of the meats according to their ability, they pay tribute to the family of the dead, in sums varying from twenty to a hundred francs. On every mountain-top they build a shrine which marks a burial-ground. The trees which grow there are left untouched.

Quite serious authors charge the Ansariyeh with the encouragement of various forms of vice, and the facts that they drink wine and allow their women to go about unveiled would be sufficient to brand them as immoral in the eyes of orthodox Moslems. It does not appear that they are chargeable with anything more serious than their neighbours. In the face of persecutions they have a tendency to identify themselves with the communities with which they come in contact.

The origin of the Ansariyeh is obscure, and the attempt that has been made to find in their present system the survival of

an old pagan cult does not seem to be successful. They have much in common with Druses and Ismā'īliyah, and these again appear to exhibit varieties of a system which at any rate from the third Islamic century produced numerous ramifications, the elevation of 'Ali at the expense of Mohammed being a feature common to them all. Their sacred literature implies the existence of the Koran as its basis ; and the identification of the objects of their devotion with the heavenly bodies, so far as it takes place, seems analogous to the historical development of other systems, wherein the astronomical interpretations can make no claim to primitive character.

Druses

The Druses now occupy a part of four districts, southern Lebanon, the western slopes of Hermon (Hāsbeya, Rāsheya, and Wādi et-Teim), the Haurān, and the northern part of the sanjaq of Hama. They migrated into the Haurān in the eighteenth century and later, especially after their massacre of the Christians in 1860. In the Haurān they have been turbulent and disaffected subjects of the Ottoman empire. In dependence on Cuinet, their numbers are generally given as about 150,000—one-third, or more, resident in the Haurān, one third in Lebanon, and the remainder elsewhere. Perhaps the proportions are correct but the total seems to be excessive, especially considering the losses they have suffered during their insurrections against the Turks.

The name Druse is derived from one *Darazi*, who taught in the time of the Fatimite Caliph Hākim (A.D. 996–1020) the divinity of this sovereign, who ranks with the Roman Caligula as a capricious and insane tyrant. The mode wherein he met his well-deserved end being secret, it was easier in his case than in those of many other real or supposed descendants of 'Ali to maintain that he was not really dead, but had temporarily disappeared with the intention of returning ; and this doctrine was maintained chiefly by one Hamzah, who is supposed to have done most to propagate the creed of the Druses. Though the expectation of Hākim's return is the dogma which sepa-

rates the Druse community from others, many of their beliefs are shared by sects that are on the fringe of Islam. Such is the belief in transmigration, coupled with the idea that the numbers of mankind are always the same; and apparently some hold that this process takes place within the Druse society, no Druse being born again outside it, but with variation in his condition according to his deserts. Yet some at least maintain that there is transmigration into animals, and a case is quoted where a Druse believed that his mother's soul had entered into a calf, because the birth of the calf was simultaneous with his mother's death. It is possible in this life for a member of the community to quit it. But there is no mode of entering it except by birth. The Druses agree with certain other sectarians that the Prophet Mohammed embodied the evil principle which is regularly represented on earth at the same time as the good principle.

Amongst the Druses public worship is performed on Thursday nights (i. e. Friday mornings) in a building called a *khalweh* or 'retreat'. It is a simple square structure of stone with a cupola, containing mats for the floor and a little other furniture. The most important of these *khalwehs* is *Khalwet el-Biyādh*, a short distance from *Hāsbeya*.

Druses recognize the Koran as a sacred book, but give it an interpretation of their own. Hence, though they follow the code of Islam in many matters, their divergence from it is also very considerable. Thus they claim that *Hākīm* abolished the tax called *Alms*, and this may account for the early spread of the system. It is stated that they do not tolerate marriage with more than one wife simultaneously; they place no difficulties in the way of divorce, but do not allow the remarriage of divorced couples. Further, married women have no share in the inheritance of their deceased parents. Unlike the *Ansariyeh* they communicate the mysteries of their religion to women.

They are divided into two classes, the '*uqqāl*', 'intelligent', and the '*jūhhāl*', 'ignorant'. The latter are not admitted to the religious assemblies held in the *khalweh*. To the stranger an obvious difference is that the 'intelligent' abstain from

tobacco, which the others enjoy. Of the 'intelligent' there are two degrees; those who after two years' probation are initiated, but continue their ordinary occupations; and those who devote themselves to sacred duties. The different degrees of initiation are accompanied by ceremonies; that whereby a man is introduced into the order of 'uqqāl has as part of it the eating of figs.

They have a cosmogony of their own, wherein they make the duration of the world 343 million years, divided into seventy cycles, each of which has had seven 'speakers', seven 'trustees', and seven 'sovereigns'. The number seven has thus religious importance, as has also the number five; their religious literature consists of the 111 treatises of Hamzah, the chief missionary of their system. Some specimens of these have been published; they are polemical in character, but contain some historical matter, dealing with Hākīm and his times. The sect is identified in some of these with the Qarmatians, who play a considerable part in the history of Islam in the ninth and tenth centuries.

They adhere strongly to the idea of tribal revenge, and with the inflexible resolve to take the life of an enemy for that of a friend there coexists the equally binding duty to protect a brother Druse who may have shed blood. In determined courage, stubborn endurance and power of united action they are superior to the Bedouin, who, however, excel them in simple daring and personal intrepidity.

Before entertaining a visitor of whose religion they have no previous knowledge, they will place two pots before him, one empty, the other full of water. If the stranger pours the water from the full vessel into the empty one, this is taken as a sign that he is a believer in transmigration. To discover whether a stranger is a true or false Druse, they ask: 'Are there farmers in your part of the country who plant the seed of the myrobalan?' The true Druse replies: 'They plant it in the hearts of the believers'.

This sort of freemasonry is necessary, as like the Ansariyeh, they maintain the propriety of *taqīyah*, i. é. concealing their sect if confession is accompanied with risk.

Samaritans

The Samaritan is probably the smallest religious community in Syria, and the sole distinct representative of ancient Israel.¹ They are (or were) petty traders, not agriculturists. Their religion is similar to that of the Jews in many respects, being pure monotheism, but differs in a variety of ceremonies and observances. In prayer they face Mount Gerizim, where also they sacrifice the Passover. They keep the Sabbath with the same or even greater rigour than the Jews, and disapprove of both images and pictures. They do not use phylacteries, fringes, or the inscription on the lintel. They suppose the name of their community to mean 'Observers of the Law', though it is more probably to be derived from the old name Samaria. Their present language is Arabic, though they have a version of the Pentateuch in an Aramaic dialect, and retain an ancient script for their copies of the Hebrew original, which differs from the copies recognized by the Jews in various matters, some of them connected with their sectarian differences.

Yezīdis

A few Yezīdi Kurds are to be found in the vilayet of Aleppo. The head-quarters of this sect are in Sheikhān, north-east of Mosul, where their chief resides, and an annual festival is held in the shrine of Sheikh 'Ādi. Their system is still imperfectly understood, though some texts belonging to them have been published. They are said to hold that the world has been in charge of seven spirits, for cycles of ten thousand years respectively, and that the present ruler is *Mal'ak Tā'ūs*. This personage being the author of all evil things is constantly propitiated; whence the system is often called *Devil-worship*. The relation between this personage and Sheikh 'Ādi, who is celebrated in a hymn or hymns, is not very clear. The latter, however, is supposed to represent the good principle; whereas the former is said to be represented by an image called a *sanjaq*,

¹ See above, p. 193.

made of brass, and ordinarily covered with a cloth. Their chief feast is said to be celebrated in the month of April. Orders of priests are enumerated to the number of five, or according to some seven; the political head of the community, called *Amīr* or *Khalīfah*, enjoys with the chief Sheikh the highest priestly prerogatives. A class of priests called *qawwāls*, or speakers, are the musicians at the annual festivals; another class, called *faqīrs*, discharge the menial duties at the Yezīdi shrines; their dress is a black or dark-brown tunic of coarse cloth, reaching to the knee, and tight-fitting, with a black turban, bound by a red handkerchief.

Among the ideas represented by their practices are reverence for the sun, and for water; they have numerous sacred springs, and are said to propitiate these by lighting lamps near them, and throwing coins into the waters. They also taboo the use of fish as food; as, too, of lettuce and cabbage; and disapprove of wearing garments coloured blue. Wednesday as well as Friday counts with them as a sacred day, and on these days marriage is prohibited. The number of wives permitted to the ordinary Yezīdi is six.

Older Cults

The attention of numerous travellers has been directed to relics of old religious systems which have survived the wholesale conversion of the inhabitants of these regions to newer beliefs, and are to some extent shared by all natives, being forbidden only by Protestants. Such are the visits paid to the tombs of various saints, who at times at least represent transformations of older objects of worship, and whose ability to procure certain objects of desire is not only widely believed in these regions, but has prevailed over the scepticism of some western travellers. The older cults are also perpetuated in the practice of *sacrifice*, used to solemnize various occasions in life; it survives especially among the nomads, but few of the older communities reject the practice altogether.

The Moslem name for 'saint' is *weli* (plural *auliyya*), and the shrine of such a personage is called *maqām* and *mazār* or

‘visiting place’. To the more important of them feast-days are assigned which recur annually. In some cases the *weli* is an ancient Prophet, e.g. Moses (*Mūsa*) or Aaron (*Hārūn*); sometimes he is the supposed founder of a tribe; sometimes a hero of the early period of Islam, e.g. the Prophet’s cousin Ja’far, who perished at the battle of Mu’tah, but was afterwards seen by the Prophet with wings; his sanctuary is three hours south of Kerak. Sometimes he is the hero of some quite recent combat, whether between the tribes or a tribe and the government. Sometimes he appears to be wholly mythical, and may perpetuate some cult belonging to pagan days. Though the *weli* is ordinarily male, there are a fair number of female saints (*welīyeh*), who enjoy reverence. Recourse is had to these personages rather than to Allah, when some object is desired; and their vengeance is very generally feared, in the case of their being treated with any disrespect.

The reverence that is paid to the *welis* and the fear of their vengeance that is widely felt enables the Bedouin to use their services as protectors of their goods. Agricultural implements and in certain cases objects of greater value are confided to their care by being placed near their *mazārs*, and the fear of disaster overtaking the robber usually renders these objects secure. Further, owing to the belief that they will inflict speedy and terrible vengeance on any one who swears falsely in their names, many a case is decided by compelling one of the parties to swear by the local *weli*. It would seem that ordinarily their sphere of action is strictly limited, unless in the case of the most famous *welis*, e.g. Abraham (the *Khalīl* of Hebron), Noah (of Kerak), Ja’far.

The Bedouin have a whole system of lucky and unlucky days, which appears to have no connexion with specifically Islamic beliefs. All days in the month which exhibit the number 9 (9, 19, 29) are unlucky; neither a journey nor a foray should be started on such a day. The same holds good of such days as are multiples of 7 (14, 21, 28). Friday is also unlucky. Sunday, Monday and Thursday are lucky for expeditions. So too is the first Wednesday in the month,

provided it does not fall on the first day of the month. Thursday and Saturday are unsuitable for new clothes. The Bedouin are said to employ their own list of month-names, which are drawn in part from the Christian, in part from the Moslem calendar, and in part are peculiar to themselves. This calendar appears to be solar, as several of the names are taken from the seasons.

A great deal of ancient belief and practice is associated with the operation of spells and incantations and with the popular reverence for sacred stones and trees and wells. Charms and incantations are used to ward off and to cure sickness and as a defence against the evil eye. Every kind of sickness is ascribed to possession by evil spirits, and the evil eye, itself, is sometimes thought of as a kind of malignant spirit. Many spirits are distinguished by names, and written charms and incantations often contain these names as well as those of the benignant powers, who are appealed to for protection. Sacred trees, wells, and stones are sometimes the shrines of well-known saints, but they are, also, in accordance with ancient belief, supposed to be inhabited by spirits. The offerings and incense which are brought to these sacred spots are no doubt intended to please and propitiate the indwelling spirits. The sacrifices offered in such cases have a ritual derived from traditions much older than the beginnings of the Moslem and Christian religions. Sacred trees may often be distinguished by the presence of pieces of clothing and rags hung upon the branches. Sometimes the local shrines are still ministered to by members of ancient priestly families.

RELIGIOUS FESTIVALS

The Great Feast of the year with the Moslems is that of the Sacrifice, celebrated on the tenth day of the Pilgrimage Month. Among the Bedouin a camel, if possible, is sacrificed ; elsewhere a sheep or goat. Scarcely less popular is that which is celebrated on the first day of the month Shawwāl, which follows the fasting month ; this is kept with enthusiasm even among tribes which neglect the fast. Among the Bedouin an

animal is slaughtered in every tent whose owners can afford the expense ; poorer families club together to provide one. In the towns and villages the people wear new clothes, and spend part of the day visiting the graves of their relations. The Christian Easter attracts great numbers of pilgrims to Jerusalem, chiefly for the purpose of witnessing the sacred fire issue from the Holy Sepulchre on Easter Eve ; the notion that this is miraculous, which was long believed, is now scarcely maintained. About the same time as the Christian Holy Week the Moslems of Jerusalem and the neighbourhood celebrate the Feast of the Prophet Moses (Nebi Mūsa), which lasts seven days. It is largely attended by the fellahin, who, in the course of it, visit the supposed tomb of Moses, which Moslem tradition places about an hour and a half south-west of Jericho. On the first day of this feast a religious service is held in the Mosque of Omar, attended by the chief functionaries ; after its conclusion the procession starts for the tomb. The chief Feast of the Jews and Samaritans—the Passover—is celebrated about the same time. Many of the local saints, Moslem, Christian, and Jewish, have (as has been seen) yearly feast-days when their tombs are visited by the devout.

Pilgrimages are a regular source of wealth to the inhabitants of the places visited, since the pilgrims besides other needs are apt to purchase mementoes of their journey in the shape of various objects connected with their religion. On the other hand, the confluence of numerous pilgrims belonging to different Christian sects at Easter time has often been a cause of turbulence and disorder, and the simultaneous Moslem festival, said to have been established with the view of preventing the Moslems being too seriously outnumbered at the time by Christians, has been a source of danger to both communities, whose religious enthusiasm is then very greatly roused. The Mohammedan fasting month, owing to the hardship which it occasions, especially when the month falls during the hot season, has also a tendency to stimulate fanaticism. The same appears to be the ordinary result of the Moslem pilgrimage to Mecca, the hardships and dangers of which

have, however, been greatly reduced by the building of the railway line as far as Medina, and will be still more reduced when that line is extended to Mecca. This pilgrimage has never failed to serve its original purpose of keeping alive the sense of unity among Sunnite Moslems of different nationalities, and religious revivals of Islam have had a tendency to start from that city.

DOMESTIC AND SOCIAL CONDITIONS

The inhabitants of different areas, the members of different nationalities, religious communities, sects, and orders, are often if not always distinguishable by their *dress*, or at least by their headgear; the varieties are therefore very numerous. The names for the different articles of wearing apparel vary very considerably in different districts. Noticeable differences are between south Palestine and north Palestine. In the former the *fellāhīn* and *fellāhūt* wear a plain long shirt with wide sleeves which reaches when not held up by the girdle to the feet. The man's garment is (originally) white, the woman's blue. The man's mantle (outer garment, when worn), is brown and white, the woman's red and black. In Samaria the prevailing colour in the man's garment is blue, in the woman's white. In Galilee and northern Syria blue baggy trousers are worn by both sexes. The women wear in addition a blue skirt which reaches to the knee or a little lower. There are numerous local varieties besides. The white turban usually denotes a Mohammedan, but in some places the old Qaisite and Yemenite tribes are distinguished by the former wearing a red, the latter a white turban, and at Bethlehem the Christians wear white turbans. The Bedouin headdress usually includes the *keffiyeh*, a shawl kept in place by a fillet of goats' hair called '*iqāl*' (pronounced '*agāl*'). The Samaritan wears round his fez a broad sash of crimson silk. The Polish Jews of Safed wear round-crowned pot-hats. A conical cap of drab felt is worn by certain Dervishes, a black turban by others. When European dress is worn by Syrians their headdress is usually a Turkish fez.

The *dwellings* of the Syrian people vary from the primitive tent to the solid structure of stone. From Masyād to Aleppo there are to be found villages of mud-built beehive-shaped huts ; they are to be met with on the plains all the way to Aleppo, and, though they closely resemble certain villages sculptured on Assyrian monuments, are like no other villages to-day save those that appear in travel-books relating to parts of Africa. With increasing wealth the owner adds another beehive and then another.

The Bedouin camps are partly composed of tents, which are usually dark brown, with sometimes a strip of grey cloth inserted. The tent is a long rectangular structure, composed of pieces of cloth, strong and coarse, thrown over a framework of poles, leaving one side open throughout its entire length, except on the part occupied by the *harīm*, which is partially closed to hide the family property. It is fastened by ropes tied to pegs driven into the ground ; an extra piece of cloth is sewn to the covering at the heads of the props. With care, it is said, a tent will last a generation. The loftiest part is high enough for a man to stand erect, and from the central ridge it slopes to the ground at the back and sides. A hanging curtain divides the tent into two parts ; it is never more than breast-high. The tent of the chief is conspicuous for its length as well as its position, which is central ; it is often 120 ft. long or more.

The houses of the villagers consist of four thick walls, composed of rough-hewn stones, with a hole for a door and sometimes another to represent a window. Local conditions are apt to influence the style and nature of the construction and the materials employed. In the mountains timber is scarce and stone abundant. This has led to the adoption of domed stone-roofs, which in turn has led to the erection of substantial walls, often three feet or more thick. The interior is usually in two parts, a raised portion called *mastabah*, occupying some three-quarters of the space, and a lower part near the door, the latter being often used for the stabling of animals. When the roof has been completed the walls are

carried up two or three courses above the spring of the dome, the corners being filled with masonry and the roof covered with earth ; in lieu of which a kind of rubble is sometimes used.

East of Jordan, where there is a greater supply of suitable timber, the roofs are made of beams across which lighter rafters are laid ; these are covered with reeds, and on these quantities of a local bush are laid ; over all earth to the depth of a foot or eighteen inches is then piled and rolled till it hardens.

The larger houses are built round courts, which correspond to the lower part of the interior of smaller dwellings. Damascus is famous for magnificent houses of an old style, built round courts with a fountain in the middle, and having staircases leading to the upper story. It is observable that in the Oriental house an absolute distinction between sitting-room and bed-room rarely exists.

In the larger towns the European style of architecture is fast gaining ground.

The mode of life which exhibits the most striking peculiarities is that of the Bedouin. This in many ways retains usages that are at variance with the codes of Islam, though the greater number of the tribes nominally profess adherence to that system. The Ottoman Government in the years immediately preceding the war, had been doing much to introduce Islamic uniformity, though in some cases manifesting a certain amount of respect for local usage. Bedouin law appears to differ from that of the Koran chiefly as follows. It excludes women from inheritance, whereas in the system of the Koran they have shares, though on the general principle that a woman's share is half that of the corresponding male. Further it gives the owner of property the right to dispose of it at death as he chooses, whereas the Koranic law limits his liberty in this matter to one-third. Besides, it recognizes *adoption*, which the Koran expressly rejects.

The raiding, which is a characteristic feature of Bedouin life, seems rarely, if ever, to involve the displacement of one

tribe by another, It is, besides, restricted by a highly complicated system of usages of which the purpose seems to be to obtain some sort of security for life and property, by rendering the consequences of robbery, at least when accompanied by bloodshed, serious. Thus there are various modes whereby smaller clans can obtain the protection of such as are more powerful, and individuals who are in danger for one reason or another can obtain at any rate temporary respite. Responsibility, whether for robbery or murder, belongs to the clan not to the individual ; and there are tariffs which differ with the different tribes for both death and the infliction of bodily injuries which are not fatal. Bloodshed is not ordinarily compensated by payment immediately, and in places there is a theory that a blood-feud lasts five generations.

Elaborate forms and ceremonies are used on occasions when a blood-feud is laid aside. The following is a description given by an Arab of Salt. When the two enemies wish the feud to come to an end, they meet in the tent of him who was offended. The lord of the tent bares his sword, turns to the south, and draws a circle on the floor, calling upon Allah. Then he takes a shred of the cloth of the tent and a handful of ashes from the hearth, throws them in the circle, and seven times strikes the line with the naked sword. The offender leaps into the circle, and one of the relatives of his enemy cries aloud: ' I take the murder that he did upon me '. Although in normal cases the responsibility for an extra-tribal murder rests upon the whole tribe of the assassin, it is permissible for an individual to undertake the full responsibility, if he performs certain operations. He should affix a white flag to the top of a lance or a staff, and go the round of the neighbouring encampments, crying out that it is his personal flag, that neither his tribe is to be disturbed nor his family exiled ; and that he calls on the Arabs to attest that he assumes the sole responsibility for the act. Having made this announcement he awaits the suitable opportunity for perpetrating it. In the same way the sheikh of the tribe has

the right to expel from it any member whose conduct is calculated to bring disaster upon it. If such an outcast then falls a victim, no vengeance is exacted for the murder. The technical name for this sort of expulsion is 'the shaking out of the mantle', and notification of it is given to the neighbouring tribes.

Bedouin life lacks all the comforts and amenities of civilization. But the tribes possess large flocks and herds, and in this sense are wealthy. The corn they require for bread is obtained from their neighbours by exchange or robbery, or is grown for them on their own lands by fellahin. They pride themselves on being free men and despise the fellahin as slaves. Their flocks and herds require extensive pastures, and as they move from place to place they pay little respect to the cultivated fields that come in their way. The payment of tribute to the Bedouin by the peasants on their borders, in order to secure a measure of protection, is a recognized usage.

Although it is convenient and necessary to treat the Bedouin as a part of the population of Syria, they belong really to the desert that lies beyond the borders of Syria proper. The Syrians, as contrasted with the Bedouin, or Arabs, are the inhabitants of the cultivated land and the large towns. Most of them live a simple country life engaged in agriculture and village industry. These usually produce for themselves all that is needed to satisfy their simple wants. Their food is chiefly bread, vegetables, and fruit. Flesh is rarely eaten. Their time is divided between the tasks of daily work, never very strenuous, and pleasant social intercourse with friends and neighbours. Domestic and village festivals are their great events. Their highest level is reached in music and in poetry. The music seems monotonous to Europeans. The instruments are flutes and drums and various stringed instruments. Native poetry and story-telling make a wider appeal. Being burdened by a bad land system and a bad system of taxation, described in next chapter, the peasants are poor and depressed by increasing debts. The taxation is in kind, is crushing in amount, and lends itself to arbitrary exactions. Debtors have to pay

exorbitant interest to rapacious money-lenders. The peasants also suffer from a system of biennial redistribution of their village lands which obstructs improvement and destroys individual initiative.

The people of the towns much surpass those of the country in their standard of comfort, in the acquaintance they have with foreigners, and in their general intelligence. They are the inheritors of an ancient civilization, of a long-established commercial intercourse, and of numerous industries on a small scale. These last now suffer greatly under European competition. The people of the coast towns are most affected by contact with Europeans and the influence of European education. Hence their adoption of European dress and their knowledge of European languages (especially French and English). Even in towns life is still simple, and the amount of money spent by an average household is not large. Prices are highest in Beirut, Haifa, Jaffa, and Jerusalem ; next to these towns come Aleppo and Damascus. Rents and the value of land are highest in Beirut.

The fundamental divisions between Moslems, Jews, and Christians, and all their many subdivisions, introduce a great diversity of usage and custom into the daily life of the Syrian people. Still, the cleavage is greater in theory than in practice and is counterbalanced by many common elements of observance and belief. The deep-seated superstitions of the country (survivals of ancient heathendom) are an important link between the adherents of the different faiths (practice of magic, reverence to sacred trees and wells, &c.). Local saints are often revered by the whole neighbourhood, irrespective of creed. Even distinctive holy days are honoured in the same way to a certain extent. In practice most Moslems are monogamous. Only rich men in towns can afford to have more than one wife. Similarly, little wine is drunk by any section of the people. The wine industry is being developed by Jewish and German and French immigrants. On the other hand in the larger towns both Moslems and Christians use intoxicants more freely.

Conflicts owing to religious differences occur between adherents of rival Christian churches almost as readily as between Moslems and Christians or Jews. In the latter cases the conflicts have generally a political or economic cause associated with the religious difference. For example, the emergence of some bad feeling between the fellahin of Palestine and the Jewish colonists is due primarily to the dispossession of the former by the latter. Where religious fanaticism still exists (e. g. in Homs and Hama) it is mainly directed against foreigners. Even that is everywhere disappearing owing to increased contact with Europeans and the influence of European education. The custom by which Moslems, Jews, and Christians live in separate quarters of large towns helps to minimize conflicts. Similarly in the country districts villages are usually either Moslem or Christian or Druse, and so forth. Villages with a mixed population are exceptional. It must be added that the improved legal status of Jews and Christians in recent times has been mainly a concession to foreign pressure and that the toleration hitherto granted by Moslems has been that of a superior and a conqueror to an inferior and conquered people. It is also true that a sense of alienation between adherents of the various faiths is never far distant and may be fanned at any moment into passionate animosity. In illustration it may be noted that both Moslems and Christians believe that the ritual murder of (Moslem and Christian) children at pass-over time is practised by the Jews when they can secure a victim.

Family groups as social units have still the wider scope that used to belong to them in ancient times. Sometimes a man's kindred are legally treated as his substitutes. Blood revenge was forbidden by Ottoman law, but was still practised even by the sedentary population and still more by the Bedouin. If a murderer has evaded pursuit for a certain time his act may be atoned by a payment of money. The position of women is subordinate among all classes and faiths. The effect of European influence in this matter is specially noticeable amongst Christians. The complete veiling of the faces of Moslem

women is a city practice, unusual in the country and least of all amongst the Bedouin.

Of the three calendars in popular use (Moslem, Jewish, and Christian) that of the Moslems, of course, has precedence and is familiar to all. The day of twenty-four hours begins at nightfall. The twelve hours of daytime are reckoned from sunrise to sunset and so vary in length throughout the year. The observance of separate days of public worship (Friday, Saturday, and Sunday) causes little inconvenience because the adherents of the different religions live so much apart and because of the nature of the observance of the days. Moslems do not treat Friday as a day of cessation from work.

It is hazardous to attempt to sum up the character of any people and still more to draw a balance between their virtues and their faults. English and American observers are struck by the general prevalence of untruthfulness and ingratitude amongst the Syrians. They condemn also their greed and their readiness to accept bribes. As a people they are unkind to animals. On the other hand, they display in a marked degree the virtues of politeness and hospitality. They are sociable and good-natured, and calm in the face of misfortune. They have also a native pride which is a source of strength. Their business capacity is evident. Courage and fighting qualities are rather lacking, except amongst particular classes (Druses, Bedouin). The long predominance of the Moslems over Jews and Christians introduces another distinction. Independence and the virtues which it fosters are characteristic of the former, submissiveness and the faults that accompany it generally distinguish the latter.

Any estimate of the economic capacities of the Syrian people must allow for the bad conditions already described. Assuming the necessary legislative reforms, it may be said, in summary, that the people as well as the country show promise of great future development. Europeans are struck by the contrast between life in Syria and that of a modern industrial state. Much time is wasted, as judged by the needs of production. All classes appreciate the sweetness of doing nothing, and

indulge themselves accordingly. Yet the town population is highly intelligent and the people generally show a marked business capacity when they have opportunity. The alleged unreliability of the Syrian character does not affect the trustworthiness of the best commercial firms. The peasants are distinguished by their simple and frugal manner of life. They are diligent and painstaking in discharging the tasks which the customs of the country demand. The rule of custom is, indeed, a marked feature of the life of the country and a barrier to progress. But Europeans generally over-estimate its strength. It is giving way inevitably everywhere, in face of the demands of modern conditions. The conservative influence of the Moslem religion, also, is only a particular expression of the force of custom and will not be a permanent obstacle to changes which are to the manifest advantage of the community. It may be asserted with confidence that the Syrians, in favourable conditions, are capable of much more rapid progress than such a people as the Egyptians.

CHAPTER VI

TURKISH ADMINISTRATION

UNDER the constitution of the Ottoman Empire before the reforms of the nineteenth century Moslems, only, had the status and rights of full citizens. Valid witness in a court of law could be given only by Moslems. The government officials were all necessarily Moslems. On the other hand, disputes in which both parties were Jews or Christians, and matters such as marriage and inheritance were subject to the jurisdiction of the ecclesiastical authorities of the Jewish or Christian communities. This provision worked the more smoothly because Jews and Christians in the large towns were grouped in separate quarters (*hārah* or *mahalleh*), and in the country most villages contained the adherents of one faith only. In the course of the nineteenth century, and especially from 1856 onwards, the pressure of the European powers secured better conditions for the non-Moslem populations of the empire. All Ottoman subjects were acknowledged, in theory, to be equal before the law and became eligible for employment as government officials. The process of reform reached its climax after the Revolution of 1908.

The Moslem law known as the *sherī'ah*, administered by the Ottoman law courts, is based in theory on the Koran and the authoritative traditions of Islam. It has, therefore, the sanction of religious authority. Along side of it there grew up in modern times another code, which rested upon the decrees of the sultans and provided for modern conditions, such as those due to contact with foreigners and to treaties made with foreigners. As early as 1861 special tribunals of commerce were established to administer an important part of this code. Finally, in 1879, under the pressure of the

European powers, a complete system of 'regulated courts' (*mehākim-i-nizāmīyé*) was established throughout Syria and the empire for the trial of cases under the new law. It is misleading to say, without qualification, that the *nizāmīyé* courts were secular and the *sherī'ah* courts religious. The jurisdiction of the *sherī'ah* courts was partly secular and partly religious, the jurisdiction of the *nizāmīyé* courts was purely secular but did not cover the whole field of secular affairs. One result of the establishment of the *nizāmīyé* courts was to diminish the resort of Christians and Jews to their own special courts. They were satisfied with the jurisdiction of the *nizāmīyé* courts in those matters for which they were competent.

The needs of foreign residents and the treaties made with foreign powers led to the constitution in the Ottoman Empire of a fourth jurisdiction, that of the consular tribunals. Cases arising between foreigners were tried with few exceptions by these consular courts, according to the laws of the countries they represented. Where Ottoman subjects and foreigners were involved cases were tried by the *nizāmīyé* courts with a consul or dragoman as assessor.

ADMINISTRATIVE DIVISIONS

During most of the period of the Turkish occupation of Syria (from 1517 onwards) the provincial governors exercised a large amount of independent authority (see p. 155 f.). During the nineteenth century the control of the central government in Constantinople was strengthened and the constitution of the provinces was more strictly defined. The system here described was based upon fundamental laws which date from 1864 and 1871. According to these the Ottoman Empire was divided into provinces called vilayets (Arab. *wilāyah*), each under a vali (Arab. *wālī*). The subdivisions of the vilayets were called sanjaqs (*mutesarrifīyeh* or *mutesarrifliq* or *liwa*) and their governors mutesarrif. Sanjaqs were divided into kazas (Arab. *qadha*), each governed by a kaimmakam (*qā'im-maqām*), and these again into nahiyehs (Arab. *mudīrīyeh* and

nāhiyeh), with a *mudir* over each. A number of sanjaqs, at first few, but latterly numerous, were not parts of any vilayet and had governors who were responsible directly to the supreme authority in Constantinople (Turk. *elviyê-i-mustaqilê*, unattached liwas).

Under this system Syria was at first divided into two vilayets, Aleppo and Sūrīya (Syria), and one detached sanjaq, the province of Lebanon. Sūrīya included nearly the whole of Syria, except the province of Lebanon. Aleppo included four sanjaqs—Mar'ash, 'Urfa, Zōr, and Aleppo—and so more than belongs to Syria geographically or historically.

In 1887–8 the vilayet of Sūrīya was divided into three parts. The eastern half retained the old name and is best referred to as the vilayet of Damascus. The corresponding western half, still excluding Lebanon and also the sanjaq of Jerusalem, was called the vilayet of Beirut. The south of Palestine became a detached sanjaq, the sanjaq of Jerusalem. From this time onwards Syria under the Turks consisted of three vilayets (Aleppo, Beirut, and Damascus) and two detached sanjaqs (Lebanon and Jerusalem). As, however, the boundaries of these divisions have varied considerably from time to time they do not provide, without further analysis, a reliable basis for the comparative statistics of populations and areas. The province of Aleppo has undergone most change. Zōr was detached before 1901, 'Urfa in 1910, and Mar'ash in 1915. The vilayet of Damascus has had a large area taken from it in the extreme SW. Some authorities add this territory to the sanjaq of Jerusalem and some do not. For its extent see p. 240, note 4.

The following is a list of the sanjaqs of each of the vilayets of Syria and of the kazas of each sanjaq.

Sanjaqs.

Kazas.

I. Vilayet of Aleppo : ¹

		{ Iskanderün (Alexandretta).
		{ Beilân.
		{ Antâqiyyeh (Antioch).
		{ Killiz.
		{ Hârim.
Haleb (Aleppo)	{	Haleb (Aleppo).
	{	Idlib.
	{	Jisr esh-Shughr.
	{	Ma'aret en-Nu'mân.
	{	Bâb Jebbûl (or El-Bâb).
	{	Membij.
'Aintâb .	{	'Aintâb.
	{	Rûm Qal'ah.

II. Vilayet of Beirut : ²

		{ Lâdiqiyyeh.
		{ Sahyûn (or Bâb Enneh).
		{ Jebeleh.
		{ Marqab (or Bâniyâs).
		{ Tarâbulus (Tripoli).
		{ 'Akkâr.
		{ Sâfita.
		{ Husn el-Akrâd (or El-Husn).
		{ Beirût.
		{ Saida (Sidon).
		{ Sûr (Tyre).
		{ Merj 'Ayûn.
		{ 'Akka.
		{ Haifa.
		{ Safed.
		{ Nâsirah (Nazareth). ³
		{ Tabariya (Tiberias).
		{ Nâblus.
		{ Jenîn.
		{ Beni Sa'b (or Tûl Keram).

¹ When the sanjaq of 'Urfa was separated from this vilayet (see above) part of the kaza of Membij was also taken away and the kaza of Raqqah was eliminated. The sanjaq of 'Aintâb previous to 1915 was a part of the sanjaq of Aleppo. The district round Aleppo, excluding the town and its immediate neighbourhood, was once a distinct kaza (Jebel Shim'an) but seems latterly to have been absorbed in the kaza of Aleppo.

² A peculiarity of this vilayet was that its northern portion was divided from its southern portion by the intervening province of Lebanon, and Beirut, its capital, stood isolated and surrounded by the territory of Lebanon.

³ During 1906-8 the kaza of Nazareth, for the convenience of pilgrims, was treated as a portion of the sanjaq of Jerusalem.

⁴ The alternative name Belqa is a survival from the time (before 1888) when the sanjaq included the Belqa district east of Jordan. A fourth kaza, Jemâ'in, with Selfit as its capital, was absorbed in the kaza of Nâblus between 1901 and 1906.

Sanjaqs.
III. Vilayet of Damascus :

Kazas.

Hama . . .	{	Hamidiyeh. Selemiyeh. Hama. Homs.
Shām Sherīf (Damascus) ¹	{	Ba'albek. Biqā'. Hāsbeya. Quneiterah. Nebk. Zebdāni. Rāsheya. Dūma. Shām (Damascus). Wādi el-'Ajam.
Haurān ² . . .	{	Sheikh Sa'd. 'Ajlūn (or Irbid). Musmiyeh. 'Ezra. Der'a (or Haurān). El-'Āhireh (or Ez-Zeidi ?). Suweida (or Jebel ed-Drūz). Salkhad.
Kerak ³ . . .	{	Salt. Kerak. Tafileh. Ma'ān.

IV. Sanjaq of Jerusalem : ⁴

El-Quds (Jerusalem).
Yāfa (Jaffa).
Ghazzeh (Gaza).
Khalīl er-Rahmān (Hebron).
Bir Seba' (Beersheba).

¹ Quneiterah was transferred from the Haurān to this sanjaq between 1901 and 1906. Zebdāni, created before 1901, was originally part of the kaza of Wādi el-'Ajam.

² This sanjaq has been very much rearranged from time to time. The capital was moved successively from Der'a to Sheikh Sa'd, from there to Sheikh Miskīn (about 1894) and finally back to Der'a (about 1903). Salt was separated from the sanjaq in 1894 and Quneiterah before 1906. The list of kazas given by Ruppīn for 1915 omits Sheikh Sa'd, El-'Āhireh, and Salkhad. Musmiyeh and 'Ezra now include most of the territory that belonged to Basr el-Harīr (still given by Ruppīn as a distinct kaza).

³ Previous to 1894 this sanjaq was called Ma'ān and had its capital at Ma'ān. In 1894 Salt was added to the sanjaq and the capital was moved to Kerak. See note 8 regarding territory transferred to Bir Seba'.

⁴ The kaza of Bir Seba' was formed from parts of those of Gaza and Hebron before 1901. In 1908 steps were taken to make it a sanjaq having two kazas, Bir Seba' and Hafir (or El-'Aḥja), and including territory to the south that had belonged to the sanjaq of Kerak or had previously not been

Sanjaqs.
V. Sanjaq of Lebanon : ¹

Kazas.
Batrūn.
Kesrawān.
Meten.
Shūf.
Jezzīn.
El-Kūrah.
Zahleh.

Under the Ottoman constitution every vilayet, sanjaq, and kaza had an administrative council associated with its governor. These councils consisted of members *ex officio* and elected members. The qadhi and the mufti of each district and the dignitaries of the Christian churches were amongst the members *ex officio*. The councils of the vilayets and of the sanjaqs had four elected members each, two Moslems and two non-Moslems, and the kaimmakam's council had three. The chief officials of the vilayet, along with the vali and the judges, were the defterdār (treasurer) and the maktūbji (secretary). In a sanjaq the corresponding officials were known as muhāsebēji and tahrīrāt mudīri, respectively.

According to the laws of 1864 and 1871 there should have been a General Council in each vilayet, meeting once a year for a session of not more than forty days. Such matters as roads, agriculture, commerce, and taxation were to be the subjects of its deliberations, though no business might be discussed without the consent of the vali, who presided. Its resolutions were to have the force of recommendations to the imperial government. Each sanjaq was to elect four members of the General Council, two Moslems, and two non-Moslems. The law regarding these councils was a dead letter.

A valuable system of local self-government was provided by the organization of the nahiyehs. The mudir and his council were elected by the district and were, therefore, of the same religion as the inhabitants. In districts where the population

administratively organized at all. Probably it was intended to make this a detached sanjaq like that of Jerusalem. The reorganization may not have been complete even in 1914.

¹ Enclosed in Shūf was the unattached nahiyeh (mudīriyeh) of Deir el-Qamar.

SYRIA

was mixed the rule was at first that half the council should be Moslem and half non-Moslem (law of 1877). Afterwards a more exact system of proportional representation was introduced (1895). The *mudir* might not be an imam, nor a priest, nor a government official. His appointment was for two years and required confirmation from the *vali*. Members of council held office for two years, half retiring each year. According to the law of 1877 a council consisted of four to eight members, in 1895 the number was fixed at four. An important duty of the council was to apportion amongst the villages their shares of the taxation of the district.

In supplement to this organization each village possessed an elected council of elders, presided over by a *mukhtār*. Under this arrangement the Jewish colonies enjoyed a large measure of self-government. Villages inhabited by adherents of more than one religious confession had a council and *mukhtār* for each. The taxation of the village was equitably apportioned amongst its families by these councils.

In the vilayet of Beirut the names *mukhtār* and elders were designations for the heads of the *nahiyehs* and their councils.

The constitution of municipal councils was governed by a law which dated from 1877. Large cities (Turkish *shehîr*) were divided into quarters (*mahalleh*), each of which had a municipal council. In smaller towns (*qassaba*) there was only one council. They were entrusted with the usual duties of city councils (water supply, lighting, streets, sanitation, control of bakehouses and slaughter-houses, city hospitals, &c.). From six to twelve members were elected for four years, half retiring every two years. The president of the council was nominated by the government and was a paid official. The city engineer, medical officer, and veterinary surgeon were consulting members. Qualified electors were all resident Ottoman subjects, males, 25 years of age, paying taxes to the amount of at least 50 piastres annually.

Lebanon and the Haurān.—From 1864 to 1914 the sanjaq of Lebanon had a special constitution guaranteed by the European powers (Austria, France, England, Russia, and

Prussia). Its governor (*mutesarrif* or *mushīr*) was necessarily a Christian and its administrative council consisted of four Maronites, three Druses, two Greek Orthodox Christians, one Greek Catholic, one Moslem, and one Metawālī. The sanjaq was divided into seven kazas, of which four were Maronite, one Greek Orthodox, one Greek Catholic, and one (Shūf) Moslem. The mudirs were nominated by the kaimmakams and appointed by the governor. Each village had its own *sheikh*. The judicial system was assimilated to that of the empire in 1879. The judges of each kaza were appointed by the governor in accordance with the religious character of the inhabitants. There were two courts of appeal, civil and criminal, including representatives of all the religious persuasions of the province. The appointments were made by the governor. Commercial cases were tried by the tribunal of commerce in Beirut. The police were enrolled from the various religious communities of the province in proportion to their numbers. The head of the police was always a Maronite. The province enjoyed a system of taxation of its own.

Until 1879 the Druses of the Haurān were entirely independent of the Turkish administration of Syria and between that date and the revolt of 1895-6 they still enjoyed a large measure of independence. After the settlement of 1896 they only retained the privilege of exemption from military service.

JUDICIAL SYSTEM

The law courts under the Ottoman government were of three grades, corresponding to the administrative units kaza, sanjaq, and vilayet. Below the courts of first instance, in the kazas, the councils of the nahiyehs and the villages acted as courts of conciliation with a limited competence. As already explained two systems of law were administered throughout the empire, so that in each administrative unit two courts divided the jurisdiction. The courts of the *sherī'ah*, regulated by the law of 1859, were under the supreme control of the Sheikh el-Islām, resident in Constantinople, and the

nizāmīyē courts, regulated by the law of 1878, were under the control of the minister of justice.

The courts of the *sherī'ah* in each unit consisted of one judge (*nā'ib* or *qādhi*), with whom a mufti was associated. It was the duty of the latter to prepare a preliminary statement of the law applicable to the case (*fetwa*). Both officials were appointed by the Sultan, upon the nomination of the Sheikh el-Islām.

The *nizāmīyē* court of each *kaza* consisted of a presiding judge and two assessors. It might be divided into two courts, civil and criminal, each with a presiding judge and two assessors. These courts could dispose of certain minor cases without appeal. The court in the capital of the *sanjaq* acted as a court of first instance for the *kaza* in which it was situated and also as an appeal court for the other courts of first instance in the *sanjaq*. It was divided into two chambers, each with two judges and two assessors. It was competent to try commercial cases when there was no commercial court in the vicinity. An appeal might sometimes be taken from the courts of first instance directly to the appeal court of the vilayet. The courts of appeal in the capitals of the vilayet heard appeals from the courts in the capitals of the *sanjaq*. They each consisted of a presiding judge, two professional assessors, and two laymen who held office for a year. They might be divided into two chambers, civil and criminal, each with a full equipment of judges.

Special tribunals of commerce were established in places where they were needed, at the choice of the minister of justice. The system of appeal courts was similar to that already described. In the capital of each vilayet there was a special court of appeal for commercial cases. It consisted of two professional judges and four laymen representative of the business community. It acted also as a court of first instance for the surrounding *kaza*.

The subjects belonging to the courts of the *sherī'ah* were defined in 1887 as being, principally, questions of marriage and divorce, liberty and slavery, wills and inheritance, and

compensation for certain personal injuries. Commercial cases, criminal cases, legal damages, leases, and contracts all fell to the nizāmiyé courts. Unspecified matters might be tried by the sherī'ah courts if the parties to the case agreed, if not they were taken to the nizāmiyé courts. The ultimate courts of appeal were all in Constantinople. The Christian ecclesiastical courts retained their jurisdiction especially in questions of marriage and inheritance. In the Jewish colonies Jewish judges decided all disputes between the colonists.

TAXATION

The chief source of revenue under the Turkish government was the tithe on agricultural produce. Next to it in importance stood customs, the land and house tax (*wergho*) and a tax on live-stock. A considerable revenue was obtained from government monopolies (tobacco and salt) and from the military service exemption tax. Other taxes were of minor importance. The tithe, the *wergho*, and the tax on animals are all very ancient taxes, well understood by the people generally. The inhabitants of Lebanon were not subject to the payment of tithe. Foreigners resident in Syria paid taxes only in so far as they engaged in agriculture. The town population was much more lightly taxed than the people of the country districts.

Tithe

This tax was originally a payment in kind of one-fifth of the produce of agricultural land. It was increased by the Turkish Government at various times (1883, 1897, 1900) until it amounted legally to one-eighth (12.63 per cent.). In actual practice the payment demanded ranged commonly between 20 per cent. and 30 per cent. and sometimes reached as much as 40 per cent. In bad years the tax was frequently levied on the standard of a good harvest in the preceding year. Peasant farmers had no means of defence against unjust valuations. The tithe was levied on gross returns, without

consideration of the cost of production. The provision that its amount should be determined within three days of the completion of the harvest was always a dead letter. The practice of farming the tithes, i. e. of putting them up to auction annually and making the highest bidder his own collector, greatly accentuated the evils of the system. Between 1839 and 1889 several attempts were made to modify or abolish the practice. But the want of trustworthy agents and the difficulty of obtaining a sufficient staff of government officials were insuperable obstacles. Besides the people suspected and opposed the alteration. The provision that a village might farm its own tithes worked well when the village was strong enough to undertake such a responsibility. In the case of some products (e. g. olives and cocoons) the tithes of a kaza or a sanjaq were put up to auction. But the cereals of each village were farmed separately. The tithes of olives were farmed for two years at a time because of the nature of the crop (see p. 261).

Town lands paid no tithes. The tithe of some perishable products, such as vegetables, oranges, grapes, and apricots, was commuted for a money payment. Silk cocoons were taxed at the rate of 12·13 per cent. and were valued and collected by officials of the Public Debt from the year 1882 onwards. The tobacco tithe was, similarly, valued and collected by officials of the Régie after 1895 (see p. 248).

Land and Building Tax (wergho)

After 1839 the land tax was levied upon all owners of land, Moslems as well as non-Moslems. By the law of 1886 the tax was $\frac{2}{5}$ per cent. in the case of land subject to tithe, and $6\frac{2}{5}$ per cent. in the case of land exempt from tithe. In 1887 the latter rate was made $5\frac{2}{5}$ per cent., and in 1900 $11\frac{2}{5}$ per cent. The land of religious and charitable institutions, state property, and communal pastures were exempted from the tax. Properties were revalued every five years.

By the law of 1886 the rate of the tax on buildings varied according to the value of the building. The charges were

1 per cent. on all houses not inhabited by their owners, $\frac{2}{5}$ per cent. (afterwards $\frac{1}{2}$ per cent.) on houses inhabited by their owners and valued at less than 20,000 piastres (£180), or $\frac{4}{5}$ per cent. when valued at more than 20,000 piastres. In addition, however, surcharges identical with those on untithed land were added to each of these rates. In 1900, accordingly, the surcharge was 11 per cent., exclusive of $2\frac{1}{2}$ per cent. more to cover the cost of collection.

In 1910 the law was remodelled. Entire exemption was given to public buildings, to houses inhabited by owners whose yearly income was less than 250 piastres, and to cattle sheds, &c. Exemption for a period of years after construction was given to mills, factories, and industrial buildings generally, to houses destined for nomads and immigrants, and to other buildings the erection of which was specially desired. Buildings serving an industrial purpose were to be taxed at the rate of 12 per cent. on the gross product, with a reduction of 3 per cent. when they were inhabited by their owners. In other cases the tax was to be 6 per cent. on the value of the buildings. None of these provisions were actually in force between 1910 and 1914.

Taxation of Live-stock

This tax was paid in kind until 1868. Only sheep, goats, pigs, and camels were taxed until 1904. In 1904 cattle, horses, and asses were added to the list. The rate varied from three to ten piastres per head, according to the animal. Sheep, goats, and asses were taxed at the lowest rates. In proportion to the value of the animals the tax was high. The numbers of each class of animal in a particular year were determined by the mukhtars, controlled by the kaimmakams. Elaborate precautions against evasion were required.

Customs

Between 1862 and 1908 the duty on imports was 8 per cent. of the value, and between 1908 and 1914 11 per cent. After the increase, goods from Egypt still paid only 8 per

cent. After 1880 industrial and agricultural implements were entirely exempt, and some institutions and individuals (hospitals, orphanages, consuls, &c.) enjoyed a partial exemption. A refund of most of the tax was allowed on goods imported and then re-exported. Before 1910 the value of imported goods was estimated by government valuers, and the only check upon their valuations was that the importer might, if he chose, pay in kind. From 1910 onwards the value of the goods was determined by the bill of lading.

An internal customs duty was payable previous to 1874. After 1874 goods entering a port by sea from another Syrian (or Turkish) port still paid a duty of 8 per cent. In 1900 the charge became 2 per cent., and in 1909 it was abolished altogether. There were always, however, a large number of important exemptions (cotton, wool, silk, flour, &c.).

A general export tax at the rate of 1 per cent. was levied from 1869 until a few years before the war. Minerals were taxed at a much higher rate (5–15 per cent.).

Revenues derived from Monopolies

From 1883 onwards the *Régie des tabacs de l'empire ottoman*, which controlled the growth and sale of tobacco in the empire (p. 266), paid the government a fixed annual sum (£750,000) in return for its privileges. Tobacco exported to Egypt was subject to a special tax. Between 1891 and 1912 *timbek* (see p. 267) was similarly controlled by the *Société du tombac*. The sum received annually by the government from this source was £40,000. In 1912 the monopoly was cancelled and an import tax of four piastres per kilo was imposed. *Timbek* grown in Syria then became subject to a tax of the same amount.

LAND TENURE

In modern times, under the Turkish Government, five or six different kinds of property in land were recognized—*mīriyeh*, *mulk*, *waqf* (Turkish *merqūfē*), *metrūkeh*, *mewāt*, and *jiftlik*.

Most of the land in Syria is *mīrīyeh*. It perpetuates a land system inherited by the Turks from the days of the Arab conquest. According to this system the state is the real owner of the land. The annual payment by the holder to the state is a recognition of this. Besides, he cannot sell the land nor gift it without permission. Nor can he erect buildings nor plant trees or vineyards upon it without permission. If the land is not cultivated for three years it reverts to the state (being *mahlūl*), and also if the holder has no legal heirs. Such property cannot be disposed of by will.

Mulk land is found mostly in villages and towns and is, more strictly, private property. It reverts to the state only if the owner dies intestate and has no natural heirs.

Waqf land is assigned to the support of religious or public institutions (mosques, schools, libraries, &c.) and provides funds for poor relief. Much of it was granted by the state at the time of the Arab Conquest. Some of it is transformed *mīrīyeh* or *mulk* land. *Mīrīyeh* land cannot become *waqf* without the sanction of the state. The owner of *mulk* land determines the conditions upon which it shall become *waqf*. He may transfer it free of all taxation and may require that he and his heirs shall continue to cultivate it, subject to a fixed annual payment. The tithes payable on *mulk* land are also capable of conversion into *waqf*. The supervision of *waqf* land under the Ottoman régime was entrusted to a local judge and to a special department in Constantinople.

Metrūkeh land is communal property used as market-places, pasture lands, roads, &c. *Mewāt* land is unoccupied and unused. It may be taken into cultivation by any one, with official sanction, and then becomes *mīrīyeh* land. Since 1908 crown property, *jiftlik*, has become national property and may be distinguished as a sixth kind of property in land. The most extensive of these domains are in the Jordan valley and the neighbourhood of Aleppo.

A very large part of Syria, perhaps the greater part, is cultivated by *métayers*, who pay the owner of the land a proportion of their harvests in kind, usually one-fifth part.

Waqf land and jiftlik are both regularly cultivated in this way. Until recently much mirīyeh land had been cultivated for generations by peasant families who had no registered title (*kushān*), although, legally, they could have acquired one. This land has now been largely purchased over the heads of the peasants from the state by wealthy townsmen, who form a new class of large landowners or effendis. The peasants continue to cultivate the land as métayers, and, so far, are no worse off, indeed may be better off than previously. But they are now subject to dispossession if the land is resold to others, such as Jewish colonists, who desire to cultivate it themselves, and this has already been a cause of grievance and of conflict. The burdens to which agricultural land was subject, under the Turks, and the bad administration of the land laws, have induced peasant owners, in other cases, to sell their land willingly to the effendis and become métayers. By this means they might escape the direct payment of tithe for which the landowner could take the responsibility. The operation of the law that land uncultivated for three years reverts to the state has been another cause of the decrease of the independent peasant class. Liability to military service often made it impossible for peasants to cultivate their land continuously, and no allowance was made in such cases. Still it was estimated in 1907 that 15 per cent. of the land in Eastern Palestine, 20 per cent. in Galilee, 20–30 per cent. in North Syria, and 50 per cent. in Judaea was in the hands of peasant owners (Auhagen). In such cases the property generally belongs to the village and is redistributed for cultivation amongst the village families every two years. Such land is called *mushāʿ*. The system of biennial redistribution hinders progress by discouraging personal initiative and preventing the expenditure of capital and by stereotyping the methods of cultivation.

Before 1856 Jews and Christians could not legally acquire land in Syria, and until 1867 a similar prohibition applied to the case of all foreigners. When these general disabilities were removed it was still found by individuals belonging to

these classes that it was very difficult for them to obtain the official permission necessary for the purchase of *mīrīyeh* land. The ownership of land in detached lots, separated from one another by the land of other proprietors, is very general in Syria, and places a serious obstacle in the way of an exact determination of boundaries and the acquirement of a clear and valid title. The consolidation of such lots into continuous properties is a condition of the satisfactory economic development of the country.

CHAPTER VII

AGRICULTURE

TAKING Syria as a whole, the cultivation of cereals (wheat, barley, dhura) is the principal part of agriculture. The value of the annual yield in cereals is probably much more than that of all the other vegetable and fruit crops together. The annual return from live stock is difficult to calculate. According to Ruppin's figures ¹ it is higher than the combined values of the fruit crops. But the cultivation of fruit is generally diffused, whereas the flocks and herds of the country are concentrated in the hands of the Bedouin on the borders. Leguminous plants (chickpeas, lentils, beans, vetches, &c.) take a foremost place among the vegetable products of the country. Amongst the fruit trees olives and grapes are about equally important. Oranges (with lemons) grow in a few districts only, but are specially remunerative and are rapidly increasing in value. Sesame is also a valuable crop. The rearing of silk cocoons, although limited to certain districts, nearly ranks with olives and grapes. Tobacco, nuts and cotton are quite secondary in comparison with the crops that have been named.

The great variety of rainfall, temperature and soil in Syria divides it into many different districts of cultivation. The rainfall increases progressively from south to north. The hilly regions are wetter than the belt on the coast. The driest district is the Jordan valley and next to it come the plains in the south round Gaza. The climate ranges from that of the Jordan valley, which is tropical or sub-tropical, to that of the hills in the extreme north where very severe

¹ A. Ruppin, *Syrien als Wirtschaftsgebiet*. Berlin, 1917. The best work on the subject, referred to throughout as Ruppin.

winters sometimes occur (e.g. 1910-11). The prevailing limestone soil is an advantage in a country with a long dry summer season. The weathering of the lava rock in the Haurān and the adjoining districts produces a very fertile soil. The coast belt and the central depression (Jordan Valley, Biqā' and Orontes Valley) and some of the valleys running east and west (Merj ibn 'Āmir) have a deep rich soil. On the coast there are extensive sandy stretches. Where the sand has clay underneath at a small depth it is peculiarly well suited for orange growing. Numerous bare hills reduce the area of the cultivated land. But their sheltered slopes and valleys are fit for cultivation and seemingly rocky surfaces are sometimes covered with only a thin crust of stone (*nāri*) beneath which is a layer of good soil in which trees find nourishment. The best soil is called *hamra* (red) and next to it comes *samra* (brown). The increase of pools and marshes and the neglect of tree planting have much diminished the productiveness of the country.

The dominating feature of the climate, in relation to cultivation, is the rainless summer. The plants and trees best suited to the nature of the country are such as grow and ripen during the rainy season (e.g. wheat) or are capable of enduring prolonged drought (e.g. olive trees). Cultivated plants that are not native to the country and do not satisfy these conditions (e.g. orange trees) need special treatment (artificial irrigation, &c.). Corresponding to the two distinct seasons are two harvests, one in spring, of the winter crops (beans, barley, wheat, &c.), the other in autumn, of the summer crops (dhura, sesame, and especially fruits, grapes, olives, figs, almonds, &c.). The chickpea is intermediate, being sown in February and gathered in June.

The Syrian farmer follows a system of rotation between summer and winter crops. The land that in one year was devoted to a winter crop is sown in the next with a summer crop and vice versa. The system excludes the growing of two crops on the same land in the same year and, of course, the sowing of the land with the same crop in two successive years.

The ancient wooden plough, drawn by oxen, and the reaping hook and the threshing sledge are still in general use in Syria. The peasants, who cultivate most of the land, cannot afford to purchase and maintain modern European implements. Besides, deep furrow ploughs are not suited to the requirements of the summer crops. Iron ploughs, reaping machines, harrows, and similar implements are being introduced where the ground permits and where capital is available (e.g. in the Jewish and German colonies). They involve necessarily certain changes in agricultural methods (e.g. more thorough clearing of the land from stones). In recent years the Turkish Government has established depôts at Aleppo, Homs, Der'a and elsewhere for the sale of agricultural implements. In 1914-15 seventy-nine European ploughs are said to have been sold in Aleppo.

The most serious defect in Syrian agriculture is its failure to supply the ground with sufficient manure. The difficulty of keeping live stock, owing to lack of pasture, partly accounts for this, but not wholly. Terraces are an important feature in the cultivation of the land. They are needed to check the rapid disappearance of the soil from the hills. A complete restoration of those which have deteriorated or disappeared would greatly increase the productiveness of the country. In most parts of Syria many summer crops, and especially the vegetable gardens, need irrigation. In the neighbourhood of Jaffa numerous petroleum pumps are used for watering the orange plantations. Many districts that are nearly waterless in summer would become highly productive if ancient systems of irrigation were restored or new systems created.

In Palestine the general experience of the Jewish colonies is that a district wholly dependent upon grain crops does not prosper. Failures of the harvest are frequent owing to irregular or insufficient rains. It is estimated that in the district of Gaza three harvests out of ten are complete failures. In the Jewish colonies in Galilee disastrous successions of bad harvests have been experienced. Delay in the early (Novem-

ber) rain postpones the sowing of seed, shortens the period available for growth and injures the quality of the harvest. Failure of the late (spring) rain is specially injurious to wheat. Barley suffers less from this cause. The traditional methods of cultivation already, in a measure, practise the principles of 'Dry farming'. Possibly a fuller application of the system, as used in America, is needed to secure the best results.¹ In any case small cultivators ought to have gardens and some live stock, to protect them against the failure of their principal crop.

In the Jewish colonies good results have been obtained by combining agriculture and fruit growing. Fruit growing, however, involves considerable initial outlay and gives no return for several years after planting. Vines produce in their fourth year, oranges, apricots and almonds in their fifth year and olives in their seventh or eighth year. Of these, vines require least capital expenditure. Oranges cost most in initial outlay and in annual working expense but, on the other hand, give the highest return. Vineyards are reckoned by Ruppin to give 18 francs net per dunam² when fully productive (i. e. 198 fr. per hectare on a yield of 22 qantars), almonds and apricots 22 fr. and olives 25 fr. Orange plantations, assuming the yield to be 80 cases (each containing 100-150 oranges), give 115 fr. net per dunam (1,260 francs per hectare). Just before the war 880 cases per hectare had been attained, and sometimes surpassed, in the best

¹ Dry farming has been extensively practised in the United States since about 1900. It is a system applied to the cultivation of arid land, when irrigation is not available. Its methods are directed to maintain a loose surface and a firm subsoil, so that evaporation may be delayed and the rainfall readily absorbed. As soon as the ground is sufficiently dry it is thoroughly loosened to a depth of about three inches, and this process is repeated at intervals as often as the ground dries after rain. The soil is moist when ploughing takes place, and after the ploughing there is a process of 'packing' which makes the subsoil firm. It has been found most profitable to allow the land to lie fallow for a season, during which time the season's rain is stored by the means first described. See also p. 451.

² See p. 324.

Jewish plantations. A yield of 20 qantars of grapes per hectare (600 kilos) is very good.

The following average returns from wheat and barley are estimates by A. Brill based upon experience in the neighbourhood of Jaffa (Ruppin, p. 91). On good land wheat should yield 140 kilos per dunam (1,540 kilos per hectare) and be worth 30 francs (320 fr. gross per hectare). For medium land the figures are 98 kilos, valued at 21 francs (231 fr. gross per hectare). The yield of barley on good land should be 160 kilos per dunam (1,760 kilos per hectare), valued at 24 fr. (264 francs gross per hectare). On medium land the figures are 120 kilos and 18 francs (198 fr. gross per hectare). After deduction of tithe and of all expenses the net return is less than one half these figures. Gross average returns of 200–240 fr. per hectare have been attained by the best Jewish colonies only in recent years.

Agricultural schools have already been established in Syria. The oldest and most important is Miqweh Israel, near Jaffa, under Jewish management (founded 1870). Small government schools have been recently established at Selemīyeh (near Hama) and Moslemīyeh (near Aleppo). A Jewish training school for young women near Kinnereth (SW. of Lake Tiberias), founded in 1910, promises well. An agricultural experiment station, established by American Jews at 'Athlīt, has already given excellent results.

AGRICULTURAL PRODUCTS

Wheat

This is the most extensively cultivated crop in Syria and the staple food of the country. There are numerous varieties, each suited to some special soil or district. *Dalā'ikeh* flourishes on soil of volcanic origin, such as that in the Tiberias district from which its name is taken. *Zer'in* wheat prefers soil of a limestone character. The name *Salamūni* is given to a red and a white variety (the latter also called *mushrakāni*). It is rich in starch. The hard Haurān wheat (*haurāni*) is

made into *burghul* (a native dish of crushed wheat) and is exported for manufacture into macaroni (see p. 278). It degenerates quickly when removed from its proper soil. A foreign species introduced by a Frenchman, Deschamps, and called *dushāni*, supplies a cheap grain for the making of starch. It requires abundant moisture and is cultivated in central Syria (neighbourhood of Damascus).

The Haurān, and generally the country east of Jordan, the Merj ibn 'Āmir, the Biqā', the plains of Homs and Hama and parts of the vilayet of Aleppo (kazas of Killiz, 'Aintāb, and Idlib) are the chief wheat producing districts. Their relative productiveness in a good year (1913) is partly expressed in the following figures: in the Haurān a measure of seed produced 25 fold, in the plain of Damascus 17½ fold, and in the northern districts 15 fold (Austrian consular report). The average returns in the Jewish colonies are much lower than any of these figures. A return of 12 fold in Palestine is held to be good. Ruppin estimates the total wheat production of Syria at 1,000,000 tons (value about £8,000,000). The amount is not more than sufficient for the needs of the population. The quantity of imported flour is greater than that of the wheat exported.

The period of the wheat harvest in the earlier districts is April and May and in the later districts May and June. It precedes the barley harvest.

Wheat grows wild in the north of Palestine and on the eastern side of Jordan, and it may be claimed that Syria was the original home of its cultivation. It is generally agreed that the country could produce very much more grain than it does at present.

Barley

The production of Syrian barley is also large, at least one half of the amount of the wheat crop and possibly more. The principal varieties are '*arabi*', grown in the Haurān, and '*rūmi*', which requires more moisture and is grown chiefly in the north and round Damascus. Barley flourishes in

a drier climate than wheat and so is an important product of the plains of Gaza. It is the chief product of the plains of Homs and Hama. In Syria it is largely used as fodder (oats not being much grown). It is exported from the districts of Gaza and Homs for use in English breweries. The Gaza crop is ripe at the end of April and ready for exportation in July.

Dhura

After wheat and barley this is the principal cereal (*Sorghum vulgare*, i. e. sorgho or mais blanc). It is a summer crop and does not need much moisture. It gives a high return in proportion to the seed sown (60 to 80 fold). It is an important substitute for wheat in districts where wheat cannot be grown and is made into a second quality of bread. Bread is also made from dhura mixed with flour.

This is the plant known as Indian millet, Turkish millet, and great millet (Indian *juār*) and is sometimes referred to simply as millet, although it is to be distinguished from millet proper which also grows in Syria (*Panicum miliaceum*, Arab. *dukhn*). As the Arabic word dhura denotes maize as well as sorgho (see below) the latter is distinguished when necessary by being called *dhura beidha*. In Egypt sorgho is known as *dhura shāmi* (Syrian dhura) and maize as *dhura misri* (Egyptian dhura).

Other Cereals

Other cereals are of less importance. *Maize* is a summer crop of foreign origin. It needs a high temperature and considerable moisture. Both the ordinary yellow maize (*dhura safra*) and a small amount of reddish maize (*dhura hamra*) are grown. *Rice* is also of foreign origin. It grows only in very moist ground. The district of Lake Hūleh is suitable for it. It is more cultivated in the neighbourhood of Mar'ash, which, however, lies beyond Syria proper. *Rye* and *oats* are very seldom grown. *Millet* is indigenous to the country. Its seeds are used for feeding birds and are ground and mixed with wheat and barley to make bread.

Leguminous Plants

Of these *chickpeas* (*Arab. hummus*) specially suit a dry climate and give excellent returns. There are several distinct species, each appropriate to the soil and climate of particular districts. Some are adapted to a relatively heavy rainfall. The seed is sown in February and the harvest is gathered in June (or July). The leaves and stem of the Palestine chickpea are covered with corrosive crystals which seem to collect moisture from the atmosphere (Aaronsohn). These crystals attack the hands of the women who gather the peas. There is a considerable export of chickpeas to France and Egypt.

Lentils, beans, vetches and *lupines* are all cultivated in Syria. The carob tree (*kharrūb*) is not much planted although it grows well and yields very nutritive pods. It is said to give a good yield with little labour. The lentils grown in the Haurān are the red kind which is more esteemed than the white variety of the Homs-Hama district. 'Adas is the name of lentils fit for human food, *kersenneh* of those that are used as fodder. Vetches supply most of the fodder of the country, hay being little made.

Vines

Grape growing is universal in Syria. At least one half of the annual crop is eaten as fresh fruit. Large quantities are also made into raisins and into *dibs* (grape syrup). Only a small part of the crop is made into wine or spirits. The chief producers of wine are the Jewish colonists in southern Palestine. Next to them are the Jesuit communities, whose vineyards are in the Biqā', and the German colonies beside Jaffa and Haifa. In the vilayets of Damascus and Aleppo more arack than wine is manufactured.

From the data given by Ruppin it would seem that the most extensive vineyards are in the vilayet of Aleppo, although their yield in 1913 was far behind the standard of other parts. Ruppin estimates the annual vintage of Syria at 270,000,000 oqqahs (340,000 tons) or in terms of money,

£1,200,000. In many places the vines are not being renewed, and the crops are therefore poor. The Damascus district in a good year (1910) produced 13,000 tons of grapes. The Hejaz railway has opened a new market for Syrian (especially Damascus) grapes. There is also a great demand for fresh grapes from Egypt.

The cultivation of the vine on terraces is general. The vines are planted at intervals of 12 ft. in rows which are 8–10 ft. apart. Terraces vary greatly in width (from 3 ft. to 12–15 ft.). The vine needs much more attention than the olive or the fig to produce good results. Its branches undergo hard pruning at the end of the winter. The ground in which it grows is dug or ploughed after the early rain and several times in spring. After the fruit appears, vigilant watch must be kept against the depredations of men and animals. The vintage commences in the low-lying districts in July, in upper Galilee not before the end of September. August and September are the general vintage months. In October wine and *dibs* are made. Fresh crops of grapes ripen even in October and November.

When the Jewish colonists began to manufacture wine they planted their vineyards with French vines because of their superior quality. After some years they were attacked and destroyed by phylloxera and American vines were substituted. It is not unlikely that Syrian varieties have been unduly neglected by the wine-producing colonies. Vines when properly treated bear fruit in the fourth year after planting and produce to their full capacity in the sixth year. The yield of grapes per hectare in the Jewish colonies with the best returns (Rīshōn, Zikerōn and Qatrah) now ranges between 20 and 24 qantars. Less successful colonies obtain 17–21 qantars per hectare.

Olives

The principal olive-groves within the coast belt are found beside Antioch, Lādiqīyeh, Tripoli, Saida, Sūr, 'Akka, Haifa, Jaffa, Ludd, and Ramleh. In Palestine they occur near

Hebron, Nāblus, Nazareth, and Safed ; in Lebanon in the Shūf and Kūrah districts ; in the north beside Rīha, Idlib, Killiz, and 'Aintāb (from Weakley,¹ with the addition of Nazareth). The distribution agrees with the conclusion that olives everywhere show a preference for coastal regions. In the Haurān olive-trees are conspicuous by their absence and they are seldom numerous east of the central depression. The neighbourhood of Damascus is one exception. Many trees in the vilayet of Aleppo were destroyed by a severe frost in the winter of 1910-11. Large groves were being planted before the war near Ludd (at Ben Shemen) and El-Khuldeh (a few miles south of Ramleh) by Jewish colonists.

Olive-trees must be planted at wide intervals : 20-24 ft. (Weakley) is a minimum distance, 32 ft. (10 metres) is usual in recent Jewish plantations (i. e. 9-10 trees per dunam). New groves are formed either by transplanting and grafting wild olives or by planting shoots from cultivated trees. The former bear fruit sometimes in five years, the latter in 10-12 years (Weakley). While irrigation is not required the soil round the trees must be well loosened several times a year. Manure is needed to produce the best results. The berries, when ripe, are usually shaken from the branches or knocked down with long poles. It has been suggested, but is not yet proved, that the cause of the trifling yield of olive-trees every second year is the rough treatment of the branches during harvest. Hand picking is being tried as an alternative. In the Shūf district and Lebanon the berries are allowed to ripen until they fall from the trees (Weakley). Apart from the biennial cycle just referred to climatic conditions rather frequently render the crop a failure. The years 1908, 1909, and 1910 were on the whole bad years, followed in 1911 by a specially good year.

The earliest olives to be gathered are those for table use and are not completely ripe. The remainder, perhaps four-fifths of the crop, is harvested about the end of October and

¹ Ernest Weakley, *Report upon the conditions and prospects of British trade in Syria*. London, 1911.

the beginning of November, and is made into oil, the better qualities being used with food and the inferior qualities in the manufacture of soap. The berries when gathered are dark green or black according to their species. In Damascus the best black variety is known as *dan* and the best green variety as *ma'asami*. Other species, which are made into soap, are *jelūt*, *tuffāhi*, and *sūri*. The same names in different localities do not always denote the same varieties.

Rāmeḥ, near Safed, is distinguished for the productivity of its trees and the quality of its olive-berries (Aaronsohn). The berries of Nāblus are said to give from 20 to 30 per cent. of their weight in oil, compared with the 10–20 per cent. that is usual elsewhere (Ruppin). The yield of oil per tree in Lebanon is said to be 12–20 gallons (G. M. Mackie). The crop of a mature tree in a good season is given by Ruppin as 10–20 oqqahs ($12\frac{1}{2}$ – $26\frac{1}{2}$ kilos) and by Weakley as 12–15 oqqahs (35–42 lb.). In modern plantations 100 trees are planted on each hectare ($2\frac{1}{2}$ acres). Olive-trees live and bear well to a great age.

Mulberries (and Silk Cocoons)

Of the two species of mulberry tree, white and black, the white only is cultivated to produce leaves for the rearing of silk worms. It is grown for this purpose on the coast from Saida northwards and especially in the Lebanon district. Ducouso¹ estimates the area covered by mulberry trees in the Lebanon district to be 14,000 hectares, and the ground on the coast, chiefly in the kazas of Tripoli and Lādiqīyeh and exclusive of the territory of Lebanon, to be 4,500 hectares. The area similarly occupied in the interior (chiefly in the Biqā' and the plain of Ba'albek and the slopes of Jebel esh-Sharqi) is only 1,760 hectares. For the vilayet of Aleppo Ruppin's figure is 75,000 dunams (6,800 hectares). It has been an advantage to the rearing of silk worms in the administrative district of Lebanon that the cocoons have not been

¹ A. Ducouso, *L'industrie de la Soie en Syrie*, Paris, 1913.

subject there to the payment of tithe. Palestine does not supply the amount of moisture that mulberry trees require.

Mulberry trees are usually grown from seed and grafted. They yield a maximum crop of leaves 15–25 years after planting and live 80–100 years. The ground round the stems must be dug up two or three times a year. The trees are pollarded both to make the foliage thicker and to allow of its being stripped off easily. There is a second crop of leaves which is used as fodder for sheep and cattle.

The eggs from which the Syrian silk worms are reared come chiefly from France. About one-fifth are Syrian eggs. A smaller proportion is imported from Asia Minor (Brussa). An ounce of eggs (25 grammes) is supposed in Lebanon to yield 25–30 kilos of (green) cocoons. Ducousso makes the average yield $22\frac{1}{3}$ kilos. Both results are very low compared with those of France and Italy. Between the hatching of the eggs and the completion of the cocoons there is a period of 5–6 weeks. The season extends from the beginning of April to the beginning of June, being earliest in the coast plain and latest in the hills. The feeding and tending of the silk worms is often a family occupation in which women and children are employed. Since 1880 the production of cocoons in Syria has much increased and it is still increasing. In 1910 and 1911 it reached a total of more than six million kilos (Ducousso) and in 1915 the quantity was similar (Ruppin). After the cocoons are completed they are dried. The process used to take ten weeks in the open air. It can now be accomplished in a few hours by the use of hot air. It is reckoned that three kilos of green cocoons (i. e. fresh cocoons) = one kilo of dry cocoons and that 5 kilos of dry cocoons produce one kilo of spun silk (Weakley). Another calculation shows that $11\frac{1}{3}$ kilos of green cocoons give one kilo of spun silk (Ducousso). The return of silk from the cocoons is, in fact, very variable and depends upon the character of the eggs and of the weather at the time when the cocoons are formed. The extreme layers on the outside and the inside of cocoons are unsuited for the process of 'reeling' (p. 284). The average length of

continuous thread that may be got from a cocoon is 800 m. (Ducouso). Recently the price of green cocoons has been 3-4 francs per kilo and of dry cocoons 9-12 francs per kilo.

Oranges

Orange growing in Syria is of comparatively recent date but has proved very remunerative and is still rapidly extending. The Jewish colonies in the neighbourhood of Jaffa have greatly contributed to its development. The chief orange plantations in Syria are in the Jaffa district. The groves of Saida and Tripoli come next. Oranges of good quality grow also at Jericho and Gaza, but not in large quantity. There is not much cultivation of oranges in northern Syria. Those exported from Alexandretta come chiefly from the vilayet of Adana, from districts that may be reckoned part of Syria but have been joined to Asia Minor under Turkish administration (Payas, &c.). The oranges exported from Jaffa in 1912 and 1913, chiefly to England, had an annual value of £300,000. Ruppin values the annual production of all Syria just before the war at £600,000. The area of the Palestine orange plantations in 1912 was about 2,100 hectares (5,250 acres) of which about one-third belonged to Jewish owners (Nawratzki¹).

Orange cultivation demands much labour and expenditure of capital. The ground round the trees must be dug and cleared four times in the year. Both the trees and the fruit are very liable to disease and require protection accordingly. Above all, orange gardens in Syria must receive extensive artificial irrigation (every 6-10 days during the dry season). Motor-pump installations, such as are now used in most of the gardens near Jaffa, cost from £400 to £600, exclusive of the cost of the irrigation system itself (Nawratzki). The expense of the transport of the fruit on camel back to Jaffa and of the packing cases, which are made of imported wood, does not as a rule fall on the grower, who sells his fruit

¹ C. Nawratzki, *Die jüdische Kolonisation Palästinas*, Munich, 1914.

as it grows upon the trees. The surplus of income over expenditure in the case of new plantations does not begin until the seventh year after planting. The culture is therefore profitable only to those who have a considerable amount of capital.

The oranges of Jaffa (*shamūti*) are thick-skinned and therefore specially suited for exportation. The stocks are young lemon trees, of the sweet variety, grafted. The thin-skinned oranges of other districts (Saida, Tripoli, &c.) are the fruit of trees grown from orange seed, which are also grafted (*abu sfeir* or *nāranj*). Grafted lemon trees do not bear fully until the eighth or ninth year. Their period of productivity is 30–35 years. Grafted orange seedlings do not produce fully until the fourteenth or fifteenth year and do not bear with as much regularity every year as the grafted lemon trees; but their period of productivity is 40–50 years. The mandarin orange grown in Syria is called *Yūsuf Effendi*.

Orange trees are planted at intervals of 10–12 ft., or, in the best plantations, at intervals of 20 ft. Sixty trees per dunam is reckoned an average number. A tree may be expected to yield 150–200 oranges. In the Jewish plantations 80 cases per dunam (880 per hectare) is a very good yield, although 90 and even 100 cases have recently been obtained in the very best years. One of the varieties cultivated near Saida yields 3,000 fruits per tree and even more (Aaronsohn). The fruit gathering season begins at the end of September, or later, and continues throughout the winter. Exportation goes on concurrently all the time.

Sesame (Simsim)

This is the most valuable of the Syrian herbs and is cultivated for the sake of its seed (mostly exported to France and Italy). The seeds produce an excellent oil similar in quality to olive-oil. In Syria they are also used in the making of sweetmeats (*halāweh*).

The plant requires a high temperature and is cultivated, therefore, in the lowlands (e.g. the Jordan valley and the coast belt of Palestine and the Merj ibn 'Āmir). The

neighbourhood of Haifa produces a specially good quality of sesame in a soil of volcanic origin. This quality sells at 400 francs per ton (Ruppin). The plant does not flourish if rain falls after it has been sown. The explanation given is that it cannot break through the crust that forms after rain on the pulverized soil (Aaronsohn). Still it must have a well-moistened soil to grow in.

Sesame plants are peculiar in that they do not ripen together and so must be gathered individually as they ripen. For this and other reasons their cultivation demands particular attention and extra labour. On the other hand the harvest gives 40-50 times the seed sown.

Tobacco

Under Turkish rule tobacco was a Government monopoly, controlled by the *Régie des tabacs de l'empire Ottoman*. No tobacco could be grown without a permit from the *Régie* which was also entitled to purchase the crop at a price fixed by its own valuers. The restrictions so imposed and the difficulty of securing a reasonable profit hindered the legitimate development of tobacco growing and fostered the growth and sale of contraband tobacco. A host of inspectors, appointed to enforce the regulations, only added to the confusion. In 1914 in order to facilitate supervision the planting of tobacco was limited to the districts (kazas) of Saida (Sūr), Lādiqīyeh (Jebeleh and Sahyūn), El-Kūrah (in north Lebanon) and 'Aintāb. No tobacco could be sold by the cultivator to purchasers within the Turkish empire but it might be exported under the control of the *Régie*.

Previous to 1914 tobacco was grown chiefly in three districts, viz. the kazas of Lādiqīyeh, El-Kūrah, and Saida. The principal tobaccos of these districts were named *abu rīhah*, *kūrāni* (or *jubeili*) and *Sheqīf* (or *Jebel Rīhān*). Other qualities grown in the district of Lādiqīyeh are *shakk el-bent* and *jedār*. In the sanjaq of 'Aintāb there are several local varieties, amongst which *husn-i-keif* is a strong tobacco which is exported to Egypt to the value of about £4,000 annually.

The sowing of tobacco varies, according to the district, between April and May and the harvest between June and July. The soil must be rich and land previously occupied by sheepfolds is often preferred. *Abu rīhah* ('the possessor of odour') is a black tobacco which, after being dried as usual in the open air, is hung on the rafters of the houses and smoked. It finds a ready market in Egypt and is largely exported to England. The tobacco of Sheqīf is similar. Jubeili is counted the best Syrian tobacco. Every district produces, however, several qualities. The production of jubeili is diminishing because of the competition of 'Turkish tobacco' (see below). Previous to 1914 the annual yield was estimated as follows: abu rīhah, 900,000 kilos or more, shakk el-bent about 500,000 kilos, jubeili 100,000 kilos (before 1911 about 150,000), sheqīf about 50,000 kilos (in 1912 about 70,000).

During the five years preceding the war an increasing amount of 'Turkish' tobacco was being grown in the districts of El-Kūrah and Saida. The plants were introduced from Macedonia and the tobacco is used chiefly in the manufacture of cigarettes. In 1910 the crop was estimated at about 45,000 kilos, in 1911 at 75,000 kilos, and in 1912 at 110,000 kilos or more (80,000 kilos in Lebanon alone). The demand for cigarettes is greatly increasing. In 1909 a factory employing 300 workmen and able to turn out seventy-two million cigarettes per annum was built in Damascus. Most of the tobacco used in the factory is imported.

Timbek is a species of tobacco used for the narghīleh. It is mostly imported from Persia but is cultivated in considerable quantities in the district of Lādiqīyeh and in small quantities on the Syrian coast and beside Jerusalem and Nāblus.

Cotton

This is a summer crop, requiring plenty of moisture. It is, therefore, most cultivated in the extreme north of Syria.

The chief centre of production is the district of Idlib in which it is reckoned that about 12,000 bales (containing 250 lb. each) are produced annually (Weakley). There are also fields in the neighbourhood of Killiz and 'Aintāb. 'Sowings commence towards the end of July and continue till about the middle of August and the bolls ripen and are gathered about the end of September and on into October.' The separation of the fibre from the seeds (ginning) is still generally done by hand, although machinery for the purpose has been introduced. The bales are also pressed by hand and so are bulky. The staple of Syrian cotton is very short, about 2 cm. (Ruppin), suited only for coarser yarns and of less commercial value. The crop is mostly exported. What is retained is used chiefly for stuffing mattresses, pillows, and quilts, also for packing purposes. The seed might be much more fully utilized than it actually is. What is not required for sowing is employed in feeding cattle.

In most of central and southern Syria artificial irrigation must be supplied to the cotton fields. During the American civil war all the coast of Palestine was planted with cotton, which was profitable owing to the high prices of the time. Recent experiments on a small scale near Jaffa and in the Jordan valley and the Merj ibn 'Āmir and the Biqā' have not yet had any permanent success. The returns have not been good and the difficulty of obtaining labour for gathering and ginning has been a hindrance. The Egyptian seed used does not yield the same return as in Egypt. Better results are hoped for from a new perennial species (*caravonica*) which does not require artificial irrigation. The areas under cotton in the Merj ibn 'Āmir and the Jordan valley in 1909-11 are given as amounting to 1,250 acres, 1,300 acres, and 650 acres respectively (Nawratzki). The average annual crop was 1,300 qantars (about 860,000 lb.). The returns were proportionately highest in 1911 (1.78 qantars per feddan). An Egyptian company is said to have purchased 60,000 dunams (13,000 acres) of land for cotton growing in the plain of 'Akka about the year 1911. But its cultivation

does not seem to have commenced before the war. See further, pp. 489 f. and 546.

Nāblus and Lādiqiyeh are said to produce specially good qualities of cotton.

Hemp and Flax

Hemp grows well in some parts of Syria, principally in the neighbourhood of Damascus where it supplies material for the local string and rope industry. The annual production of fibre there is estimated at 1,300 tons and might be largely increased (Weakley). The seed is used as bird seed and the stems for fuel. In the vilayet of Aleppo a much smaller quantity is grown. The rope industry of Aleppo uses hemp brought from 'Urfa and from India and even so does not supply all the requirements of the district. *Flax*, although an ancient product of the country, is now very little grown.

Sugar Cane

Sugar cane is grown to an insignificant extent on the coast of Syria and in the Jordan valley, where the necessary moisture is available. It is planted in February and March and is ripe in October and November. See pp. 452, 477, &c.

Figs

The fig-tree grows throughout Syria and supplies one of the important foods of the people. It is most abundant in the north Syrian plains, in Jebel esh-Sharqi (Anti-Lebanon) and in the neighbourhood of Ma'lūla. Plantations are infrequent except in northern Syria. There are numerous species of figs distinguished, in part, by the colours of the fruits. The chief colours are greenish yellow, purple, and white.

August and September are the months in which ripe figs are abundant. Some trees produce a small early crop a month before the principal crop. These figs (*deifūr*) are prized more because of their early date than because of their quality. There is also a late autumn crop which is not of

such good quality as the summer crop. In Lebanon there are species which produce only a late crop.

Where figs are abundant the greater part are dried by exposure to the sun for some days and packed for preservation in air-tight masses. Only some kinds of figs are suited for this treatment (especially *kharrūbi* and *byādi*). Such figs are allowed to remain on the trees until they can be detached by shaking. The Hejaz railway has opened good markets for the dried figs (*quttein*) of Jebel esh-Sharqi and of the plains of the north. Saida is a centre of the dried-fruit trade. But it has not yet been extensively developed anywhere in Syria.

The sycamore or mulberry fig (*jummeiz*) produces abundant fruit of a quality inferior to the ordinary fig. The tree is valued mostly for its wood. It grows chiefly on the coast of southern Syria, as far as Beirut. The fruit is of a pink colour.

Apricots

Apricots (*mishmish*) flourish where a good supply of water is obtainable. The most extensive and productive plantations are those of the neighbourhood of Damascus and the exported fruit comes chiefly from there. The tree grows well in parts of the Biqā' also and elsewhere. In Palestine the Ramleh district produces a steadily increasing yield of apricots.

There are early and late varieties which may be grown in the same district with a difference of two months in the period of ripening. The variety known as *mishmish kelābi* has bitter kernels, the others have sweet kernels which may be eaten like nuts. In Damascus the cultivated apricot is grafted on the *mishmish kelābi*, in other places the almond tree is generally used as a stock.

Apricots are exported in two forms, as dried fruit and as apricot paste (*gamr ed-dīn*). This latter is used in Syria as a sweetmeat and in making *sherbet* (a native drink), and when exported to Europe it is made into jam. The apricots are first beaten into pulp and stoned and then spread out on

boards in thin sheets and dried in the open air. The industry is profitable and the demand is increasing. Apricot kernels also find a market abroad, being exported for the manufacture of marzipan.

Dates

The date palm is really a tropical tree and so produces ripe fruit in Syria only in the valleys of the Jordan and its tributaries and in the extreme south of Palestine. Its diffusion at the present day is more limited than it used to be. Large plantations are found only in the valleys of the Yarmūk (El-Menādhireh) and the Zerqa Mā'in. In districts where the fruit does not ripen naturally the bunches are sometimes wrapped in cloths soaked in vinegar in order to make them fit for eating.

Melons, Pomegranates, and other Fruits

Melons are of two principal varieties, large (*batīkh ahmar* = water melon) and small (*batīkh asfar*). They grow without artificial irrigation and are specially suited to the coast plain between Jaffa and Haifa. The *abu taba'* variety is early ripe and specially suited for exportation because of its thick skin (compare the Jaffa orange). There is a large demand for Syrian melons in Egypt. In the district of El-'Arīsh melons are used as fodder. The seeds are then extracted for export to Egypt, where they are eaten like nuts.

Of the less common fruit trees the *pomegranate* (Arab. *rummān*) is one of the chief. It grows all over Syria in a great number of varieties. One of these, found near Gaza, is called *bint el-bāsha* because of its excellence. Rāmeḥ in Galilee is noted for its pomegranates. The tree grows both in dry and in well-watered soils. The skins of the fruit can be used in the process of tanning. *Apples* and *pears* grow especially in the neighbourhood of Damascus and in the Biqā'. *Peaches*, also, grow in some parts in considerable quantities.

Liquorice and Colocynth

Liquorice is obtained from the roots of a plant which grows wild abundantly in northern Syria (Antioch, Killiz, 'Aintāb) and in the adjoining districts (e. g. at Raqqah on the Euphrates). The roots are dug up by peasants and sold to an American company (McAndrews, Forbes & Co.) which has a factory at Alexandretta and exports the products to America to be used in the preparation of chewing tobacco. The root is also found in central Syria (e. g. near Damascus).

Colocynth (*hondhol*) is another wild plant with a fruit for which there is a market abroad. It grows in the neighbourhood of Gaza and Beersheba and is like a small melon. It is exported mostly to England and the United States.

Vegetables

Vegetables, generally, are grown in great variety and with much success by the peasants for their own use and for the consumption of the town-dwellers. Onions are abundant and are an article of export from Tripoli. Potatoes are of modern introduction and do not grow to advantage everywhere. They are most cultivated in the neighbourhood of Aleppo and Damascus and are chiefly asked for by foreign residents. The seed for each year's crop has to be imported.

Nuts

The nuts of Syria are chiefly consumed by the inhabitants, but they also provide an article of export. *Pistachio nuts* (*fustuq*) are abundant in north Syria (Aleppo, 'Aintāb, Rūm Qal'ah), to a lesser extent in the centre (Tripoli, Beirut, Damascus). The sanjaq of 'Aintāb is said to have a revenue from pistachio nuts of £15,000 yearly. It is still the most valuable of the nut crops. *Walnuts* (*jōz*) are produced chiefly in the neighbourhood of Damascus and in other well-watered districts. *Almonds* (*lōz*) are found chiefly in Palestine, where they have been planted extensively in the Jewish

colonies. Previous to the war only a small part of these new plantations (area 4,000 acres in 1912) was productive. The trees are planted in rows which are about 12 ft. apart, they begin to bear in the fifth or sixth year and are fully productive in the seventh or eighth. When fully productive they give a yield of 40 kilos per dunam (50 trees) and are very profitable. The Palestine almonds are of two varieties, both sweet. One is thin shelled ('Princess') the other thick ('Victoria'). The former is more subject to disease and does not give so good a return as the latter.

LIVE-STOCK

In Syria sheep and goats and cattle and other domestic animals are reared chiefly on the borders by the Bedouin. The principal cattle markets are in the extreme north. The animals sold there come mostly from countries beyond Syria, from the north and north-east and east (Armenia, Mesopotamia, &c). So do the droves which pasture for a few months in El-'Amq (beside Antioch) before exportation. Syrian *cattle* are usually small sized and produce only small quantities of milk. This is due principally to the climatic conditions and to the scarcity of pasture during most of the year. From June to November pasture is very scanty, in most parts, and even during April and May it is insufficient. The plains of Damascus provide good pasture and so do the Orontes valley and the valley of the Kuwaik (near Aleppo). In these districts the cows are of a superior breed and give a good yield of milk (3,000-4,000 litres annually). In Lebanon mulberry leaves supply excellent fodder for the cattle which are therefore also of a better breed. Elsewhere cattle are bred mostly to supply oxen for ploughing. Dairy farming and the formation of good herds have also been hindered by the prevalence of cattle disease. The Turkish Government never took proper measures to stamp it out.

Milk and, to a small extent, meat are generally obtained from *sheep* and *goats*. Sheep's milk is used for the making of

cheese and *leben*, a favourite dish. Olives take the place of butter among the fellahin. Butter is made chiefly by the Bedouin. To keep it from becoming rancid it is commonly melted and thus becomes *semen* (=ghi). The sheep are a variety of the fat-tailed kind. Their wool makes their breeding very profitable. The shearing time is in April or May. The goats are mostly of two kinds, the horned mountain-goat and the long-eared goat (*Capra mambrica*). The Angora goat is found in a few localities in northern Syria. There is a considerable export of sheep and goat skins. In 1910, 30 tons of goat skins and 77 tons of lamb skins were exported from Beirut, chiefly to Germany and France. In 1911 the quantities were 20,000 goat skins, 160,000 lamb skins, all untanned, and about 100,000 tanned sheep skins.

Camels, *horses*, and *asses* are kept in varying proportions throughout Syria, without any one of them being, on the whole, predominant. The camels and horses are generally bred by the Bedouin. The former are owned mostly by the Bedouin and were the chief means of transport before the railways were constructed. A camel's burden varies between 200 and 300 kilos. As a measure of quantity it denotes 150–200 kilos. The camel yields its owner milk and hair. Its flesh is sometimes eaten and its skin made into shoes. The horses of Syria are serviceable without being specially good. Poor feeding diminishes their value. Asses are everywhere used by the peasants as their beasts of burden and their usual riding animals. Sometimes they are employed along with oxen in ploughing.

Buffaloes require much water, so that herds are found chiefly in the Jordan valley and the plains of Damascus and beside Antioch. They are used in ploughing, for which their great strength and long working life (30 years) specially fit them. *Mules* are bred chiefly in northern Syria. There is a national prejudice against *swine*. It is more strongly felt by Moslems than by Christians, but is shared by the latter also.

Fodder.—Owing to the scarcity of pasture leguminous plants are important as fodder. Vetches, lupines, and lentils

(*kersenneh*) are so used, and melons in the district of El-'Arīsh. Clover and lucerne are found only in well-watered districts ; lucerne abounds in the meadows of the Damascus plain. The use of hay is rare. *Tibn* (chopped straw) and barley are the usual fodder of horses and mules. The Jaulān is one of the few places where hay is produced.

CHAPTER VIII

INDUSTRY AND TRADE

INDUSTRY

THE want of coal and iron in Syria prevents an industrial development of the character and on the scale of that now general in Western Europe. European factories draw away much of the raw materials upon which native industries might be based (e.g. wool and silk). Only in favourable circumstances are these retained to be worked up at home. Most of the wool and cotton of Syria is exported and manufactured into yarn abroad. The textile industries now use, almost exclusively, imported yarns. The other chief industries provide articles of food and clothing from the raw material of the country. Flour, oil, soap, and silk thread are the most valuable products. Wine and tobacco are not so important, although their output might be much increased. Wine, not being much consumed in Syria, must be manufactured more for export than for home use. A government monopoly has interfered with the cultivation of tobacco (see p. 266). It is still uncertain whether cotton can be produced on a much larger scale than at present (see p. 268). Tanneries are numerous and flourishing. Other industries, such as pottery making and the building trade, although fundamental, are not highly organized and generally do not supply any material for export.

Most of the machinery in use is imported from Europe. There are, however, two machine factories in Jaffa, one in Haifa, and one in Beirut. They supply, partially, irrigation plants and milling machinery. The construction of railways has led to the establishment of well-equipped railway workshops.

Ruppin¹ estimates that 60–70 per cent. of the Syrian people depend directly upon the cultivation of the land, and only 10–15 per cent. upon industries and handicrafts. He says that there are probably fewer than 100 factories having more than 50 hands, and less than 12 that employ as many as 100 hands. Most manufactures are organized as home industries or are carried on in quite small workshops. The development of industries on a larger scale was at first the work of foreigners, who alone had the necessary capital and experience. But the Syrians themselves are now sharing in the new movement.

The industrial future of Syria seems to depend upon the safeguarding and development of already existing industries rather than upon the erection of new industries. There can be no question of creating new industries for which the economic foundations are entirely wanting. The only known industrial resource that has not yet been largely exploited is the water power of the Syrian rivers. On the other hand, with better methods and machinery it should be possible to retain all such raw materials as wools, hides, and silk for manufacture at home. Thus even the industrial prosperity of the country depends, in the last resort, upon its agriculture.

*Flour, Starch, and Macaroni*²

The old handmills for grinding corn are still found in every village. They produce 10–15 kilos of flour per day. Mills driven by water power are common where water power is available. Damascus, because of its good water supply and its proximity to the Haurān, has long been a centre of the milling industry. In 1912 it possessed 78 water mills and 12 driven by steam power. The opening of the Haifa branch of the Hejaz railway has favoured the direct transportation of grain to the coast and is lessening the share of the Damascus mills. In the vilayet of Aleppo there are about 310 power mills, mostly using water power. In 1913, 55 of these were

¹ See p. 252 note.

² The particulars are mostly given by Ruppin, *op. cit.*, pp. 152–4.

driven by motor power. In Jaffa in 1912 there were ten mills driven by steam power and in the same year five in Gaza. The number of mills equipped with European machinery is steadily increasing. They are driven by steam engines or petroleum motors or gas engines. The largest in the country are two in Beirut, which are capable of grinding together 40,000 kilos daily. Steel rollers are exceptional even when European machinery is used. The mill-stones are generally made of hard basalt from the Haurān.

A large amount of European flour is imported. It is of better quality than the Syrian product and sells at a higher price. The native wheat, being harder than that from which European flour is made, requires expensive machinery to grind it as finely. On the other hand, it is well suited for the manufacture of macaroni and is exported to Italy for this purpose. There are macaroni factories in Jaffa, Jerusalem, and Beirut.

Starch is made in small factories in Damascus and Aleppo. In Damascus there are about thirty such factories with 2-6 hands in each ; in Aleppo there are twice as many. The starch is used in the making of native food stuffs. Some is also exported.

Burghul is wheat which is boiled before being milled. It supplies a favourite Syrian food and is exported to Egypt and to parts of the Turkish empire, as well as to South America (for Syrian settlers there).

Olive Oil and Soap

The industries based on the cultivation of the olive tree are amongst the most important in Syria. The annual production of olive oil of all qualities is reckoned by Weakley (on a two years' average) at 17,450,000 oqqahs (22,000 tons). Of this about $5\frac{1}{2}$ million oqqahs are produced in Palestine, about 6 millions on the remainder of the Syrian coast and in Lebanon, and about $5\frac{1}{2}$ millions in the north. The yield of the vilayet of Damascus, which is substantial, is apparently not included in these figures. The proportions of each district vary

necessarily from year to year according to the crop. Ruppin estimates the number of oil presses at from 600 to 800, the number of people engaged in the industry at between 6,000 and 10,000, and the value of the annual output at £1,000,000.

The table oil produced is consumed in the country and requires less than one-half of the usual crop. Its quality is injured by the rough treatment of the olives during the harvest, and the amount obtained is diminished by imperfect methods of crushing and pressing. Modern machinery is, however, being introduced in all the principal centres of manufacture. Weakley ascertained that 100 hydraulic presses were in use in the Lebanon district, 22 in Damascus and the Haurān, and 30 in the country lying round Haifa and 'Akka. Before the introduction of modern machinery Killiz table oil had a specially good reputation.

The chief centre of soap-making is Nāblus and its neighbourhood (with about 30 establishments). In Tripoli in 1911 there were twelve soap factories, producing, in a good year, 5,300 tons of soap. Other important centres are Jaffa, Damascus, Antioch, and Aleppo. The soap of Nāblus, of pure olive oil, has a high reputation. Other ingredients, e.g. talc and caustic soda or *qili* (=alkali), give a special character to the soap of each locality. Round Antioch oil made from the berry of the *ghār* (bay tree) is mixed with olive oil to produce perfumed soap. The soaps of Aleppo and Antioch are highly esteemed. 'Aintāb, also, manufactures what is called Aleppo soap. The destruction of the olive trees of Killiz in 1910-11 has injured the soap industry of 'Aintāb. There are good markets for Syrian soap in Egypt, Arabia, Mesopotamia, and Asia Minor, so that this industry is constantly expanding.

In recent years the supplies of olive oil in the country have been insufficient for the soap industry and have been supplemented by importation. In 1911 the importation of olive oil through Jaffa from Smyrna and Mitylene was 647 tons and in 1912 1,100 tons. Even cocoa-nut oil, cotton oil, and maize oil are imported, to be used in combination with olive

oil in making soap. Soap made from these mixtures has not the same qualities as soap made from pure olive oil and does not satisfy those accustomed to the latter.

The Syrian soap factories, which are usually small, number about 150 and employ two or three thousand hands (Ruppin). Their annual output is estimated at 20,000 tons, worth £600,000. It is reckoned that 100 oqqahs of oil will produce 130 oqqahs of soap (Weakley).

After the oil has been extracted by pressing from the olives there is a remnant of about 50 per cent. of the original weight; known in Arabic as *jift*. It is used as fuel. Factories for the extraction of oil from *jift* by a chemical process exist at Tripoli and Beirut. Two smaller factories in Haifa and Ben Shemen (near Ludd), owned by a Jewish company ('Āthid), were closed in 1912.¹

Wine, 'Dibs,' and Raisins

The preparation of raisins and of *dibs* (grape syrup) is much more extensive than the manufacture of wine and spirits. When grapes are to be made into raisins they are first soaked in a preparation of alkali to which some oil has been added. This makes the berries soft and prevents them from being scorched by the sun when they are drying. They are afterwards laid out to dry in the sun for 10–15 days. The best raisins of Damascus, made from a fine species of grapes, are known as *darbeli*. Raisins are produced most largely in the vilayet of Aleppo and in the Biqā'. Important centres in southern Syria are Hebron and Salt. The annual value of the raisins of these two districts is estimated at £20,000. The quantity of Damascus raisins exported in 1909 was 200,000 oqqahs (250 tons), and in 1911 700 tons (Austrian Consular Reports).

In preparing *dibs* the grape juice is extracted and mixed with a preparation of lime and then allowed to stand overnight. Next day the liquid is poured off and then boiled until it reaches the required consistency. The quantity of grapes devoted to

¹ See further pp. 391, 454, and 491 f.

the preparation of *dibs* is similar to the amount made into raisins, according to Ruppin's figures.

The ancient process of wine-making is still practised to some extent by Syrian Christians (e. g. in Lebanon). But, as already stated (p. 259), the wine production of the country is chiefly in the hands of European settlers, who employ European processes. The Jewish colonies of Rīshōn and Zikerōn are the greatest centres of wine production. They obtained their capital and equipment originally from Baron Edmond de Rothschild. The crisis through which these and other wine-producing colonies passed at the beginning of the twentieth century was not so much due to overproduction (as is often said) as to a combination of other causes, particularly the high prices paid to the colonists for grapes (25 francs per qantar), the want of a proper organization for the sale of the wines and, possibly, an erroneous choice of the kinds of wine to be manufactured. The remedial measures, which included the uprooting of a portion of the vineyards, proved entirely successful.

The wines most easily made on the coast of Palestine are such as have a high proportion of alcohol and are deficient in bouquet. The slight fermentation, which alone gives a good flavour to the wine, is hindered by the high temperature. Expensive cooling processes were therefore introduced by the Jewish colonists. This greatly increased the cost of production and was one of the causes of the financial difficulties of the industry.

The Turkish system of taxation imposed considerable burdens on the manufacture of wine. The grape growers were subject to a land tax and to the tithe (amounting nominally to 12½ per cent. of the crop, but actually to much more). On the value of the wine or spirit manufactured 15 per cent. was payable. Half this last impost was remitted if the wine or spirit was exported. In 1910-11 and in 1911-12 the yield of the excise tax was about £20,000 (2½ million piastres). Ruppin estimates the value of the annual production of Syria at £200,000. About half the amount exported before the war

went to Egypt. Germany took the next highest proportion owing to its connexion with the Templar colonies (p. 192).

*Sesame and other Oils*¹

Sesame oil is manufactured chiefly in southern Palestine, where there are about forty small factories (in Ludd, Ramleh, Jaffa, and Jerusalem). On an average they treat 150–200 kilograms per day. In Jaffa there are two Jewish factories with hydraulic presses, one treating 2,000 kilograms per day and the other 3,000 kilograms. These produce a purer oil which sells at a higher price than the product of the smaller factories.

The roasting of the seeds after the husks have been taken off is part of the process in the smaller factories and gives the oil a special taste which is absent from the oil made in the Jewish factories. After the roasting the seeds are ground and then trodden in troughs. About 45 per cent. of the weight of the seed is obtained in oil. *Halāweh*, a favourite sweetmeat, is made from a portion of the pulp of the ground seed (sweetened with sugar). The pulp left after the treading process is used for feeding cattle and even as human food, by the poor.

Other oils and perfumes are manufactured in small quantities (castor oil, geranium oil, the perfume of orange blossom, &c.). Some of these industries are probably capable of profitable development.

Raw Silk

A considerable proportion of the raw silk manufactured in Syria is spun in the villages by means of spinning wheels. But only injured and inferior cocoons and the waste of the factories are available for these small spinners. The product is coarse and (usually) not good enough for export.

The first spinning factory was established in Lebanon in 1840 by a Frenchman, M. Nicolas Portalis. In 1912 there were 194 such factories in Syria (having 10,866 pans). One

¹ The particulars in this section are taken from Ruppin.

hundred and fifty-five (with 8,669 pans) were in Lebanon, mostly in the Meten district (Ducousso¹). The industry is said to employ 10,000–12,000 workers, of whom five-sixths are women and children (Ruppin). In the busy season, following the cocoon harvest, extra hands are engaged (July–August). The exemption of the Lebanon district from Turkish Imperial taxation and the presence there of a large Christian population, from which women workers can be drawn, are reasons for the concentration of the industry in Lebanon. The factories which are now mostly the property of Syrians, are far from equal to the factories of France and Italy. They spin their thread from two strands only (instead of four or five), and the temperature of the water in which the cocoons float during the unwinding process cannot be kept as uniform as it should be.

Syrian silk thread is famed for its elasticity and for the good results with which it can be dyed (Ducousso). It has also the advantage of coming early upon the European market. On the other hand, faults of manufacture (unevenness and lumpiness) are common and the thread is allowed to absorb and retain too large a proportion of moisture. Since silk is sold by weight there is a standard fixed for the amount of moisture it may contain (11 per cent. in the European market).

Already a large part of the cocoon harvest is exported in a dried condition to France. Ruppin estimates that 20–25 per cent. of the production of Lebanon and the vilayet of Beirut is thus exported. The cocoons of northern Syria (Antioch, Lādiqīyeh, &c.) are nearly all exported. It is said that in 1910 the proportion of cocoons exported from all Syria was 35 per cent. (Schulman). This export threatens the prosperity of the spinning industry by taking away its best raw material. The Ottoman Government during the war recognized the danger by imposing a protective tariff. Altogether the spinning industry just before the war was in a critical position. The competition of Chinese thread in the French market was one cause. Another was the loss of female labour in

¹ G. Ducousso, *L'industrie de la soie en Syrie*. Paris, 1913.

Lebanon due to emigration. Another the want of capital with which to purchase the equipment needed to compete with European factories. In 1912 twenty-five factories in Lebanon had been closed down.

After the process of unwinding the thread from the cocoons is complete (*filature*, *tirage*, or 'reeling'), two other processes are required to prepare it for dyeing and weaving. The weak threads of the raw silk (*soie grège*) need to be twisted and united with one another (in twos, threes, or fours) and so made into silk yarn. This process is called *moulinage* (or 'throwing'). Afterwards the yarn is steeped and so freed from a large part of the gum or waxy substance (*grès* or *sericin*) which holds the threads of the cocoons together and still adheres to them (process of *décreusage*). The silk is now a brilliant white and is ready for dyeing. Syrian silk is exported in a raw state, i. e. before it has undergone these two processes.

The production of raw silk for all Syria exclusive of the vilayet of Aleppo is given by Ducousso as having been 527,000 kilos in 1910 and 524,000 kilos in 1911. This is a considerable increase on the average of the preceding ten years. Very likely the amount adds an allowance for the exported cocoons (35 per cent. of the whole) and so includes more than the silk actually produced in Syria itself.

Of the silk thread which is left in Syria for the native looms the kind called *dupions* is made from double cocoons. Double cocoons are the result of two worms spinning so closely together that their work becomes entangled. *Skandarāni* silk thread is the best of the inferior qualities that are made outside of the spinning factories.

Textile Industries

These are concentrated in a few centres, principally Homs, Aleppo, and 'Aintāb, to a lesser extent in Damascus, Hama, and some villages in Lebanon (Deir el-Qamar, Beit ed-Dīn, &c.). In southern Syria only Gaza and the adjoining Mejdel have any appreciable share in textile manufactures.

The stuffs woven are principally the dress materials used in Syria and the adjacent countries. They are mostly made of cotton or a mixture of silk and cotton. Pure silk fabrics and woollen stuffs are much less common. The cotton, silk, and woollen yarns employed are nearly all imported, the cotton from England, Germany, and Italy, the wool mostly from England, and the silk from China. Home-spun silk is also used, especially in Homs. There are practically no cotton or woollen yarns of home manufacture. The Chinese silk thread of which most is imported is called *Schantung*. Another quality is known as *Vincho*. In recent years an increasing amount of Brussa silk thread (*dupions*) is also imported. Regarding the native silks used by the looms, see pp. 282 and 284.

The principal dress-stuff of mixed silk and cotton made in Syria is called *alajeh*. Like most dress materials it is striped. *Mesriyeh* is a heavier cloth made principally in Damascus for export to Egypt. *Qutni* is the name of the material used for such purposes as the covers of *dīwāns*. It is made in large quantities in Damascus. The principal cotton fabric is known as *dimeh* and is the ordinary material of men's dress (*gumbāz*, &c.). The principal silk fabrics are *melas* (which is used for women's underclothing) and *menūsh* (expensive figured silk). Valuable sashes of pure silk are a speciality of the looms of Beirut and Deir el-Qamar. The *keffiyeh* (a head covering) is made of silk or cotton or of mixed silk and cotton. It is often shot with silver or gold threads. The 'aba (or 'abāyeh), the upper garment of the Bedouin, is the principal article made of wool. In Damascus and Sūq (in Lebanon) the 'aba is an important article of manufacture. As a ceremonial dress it is made of silk. The weaving of rugs and carpets is not an important industry. It flourishes chiefly among the Bedouin of northern Syria and in some Lebanon villages. It is one of the industries that are being fostered by the Jewish association, Bezalel, in Jerusalem. A large carpet factory in Aleppo, employing 1,000 women in 1911 and 1912, was afterwards closed.

The weaving of black goats'-hair cloth for tents is a speciality of 'Aintāb.

The textile industry is diminishing under stress of European competition. The demand of the Egyptian market is much less. The home market is seriously affected by a growing preference for European dress. The patterns produced by the hand-loom of Syria are imitated and more cheaply produced by the power-loom of Switzerland and northern Italy. Experiments with power-loom in Damascus and elsewhere have as yet been unsuccessful because of the want of repairing facilities and because of deficient skill in the personnel. The best hand-loom is those of the Jacquard type and even these are not numerous. Apart from the introduction of power-loom, the textile industries could be strengthened by more use of the native raw materials. The manufacture in Syria of woollen and cotton yarns would be profitable in itself and would benefit the weaving industries. Since weaving is largely a home industry the situation resembles that of the period of the industrial revolution in England, from which, therefore, some guidance may be got. In the case of silk weaving, at least, it would seem to be the best policy to preserve the good quality and the higher prices and the special character of the local fabrics. The hand-loom weaver cannot compete in cheapness with the power-loom factory.

Ruppin estimates the value of the annual output of the textile industries at between 30,000,000 and 40,000,000 francs (£1,200,000-£1,800,000) and the number of workers at from 30,000-40,000. He gives the number of looms in Aleppo before the war as having been 4,200. Weakley's figure for 1909, 10,000, is presumably an over-estimate and may possibly have included many that were standing idle. According to Ruppin's information Homs was the chief centre of the industry in 1914.

The knitting of stockings by means of modern knitting machines is a large and growing home industry. According to Weakley it flourishes principally in Aleppo and to a lesser extent in Damascus. In the former town 5,000-6,000 workers

were employed in 1909 and in the latter 1,500–2,000. The material used is imported cotton thread, locally dyed. Ruppín estimates the value of the annual output at £400,000. The women workers are very poorly paid.

Dyeing Industry

This industry is closely associated with the textile industries. Its chief centres are Aleppo and Damascus. Less important centres are 'Aintāb, Killiz, Hama, Homs, and Beirut. Ruppín gives the number of dye-works in Aleppo before the war as having been 80, of which 60 were exclusively engaged in indigo dyeing. They employed about 300 workers in all.

The favourite dress-colour of the Syrian people is dark blue, to produce which indigo is imported from India. Synthetic indigo is also now generally used, being blended with the vegetable product. For most other colours aniline dyes are imported from Germany. For red, vegetable alizarin is used as well as red aniline dye. Formerly most dyes in use were vegetable products obtained in Syria itself. But the introduction of aniline dyes has made the industry much more profitable than it was formerly.

The dye-works vary in size from those having 5 vats to those in which there are 60–70 vats. The number is usually under 20. The busy season is from April to November, when the working day lasts 10–11 hours. Winter is a slack season because the hours of daylight are shorter and the process of drying in the open air is difficult. Both piece goods and yarns are dyed, except in the case of silk, which is always dyed as yarn. Syrian dyed yarns can be sold much more cheaply than the coloured yarns imported from abroad. Homs and 'Aintāb make a specialty of dyeing yarns.

Tanning

The leather of which the uppers of native shoes are made is called *sakhtiyān*. It is made from goat skins, chiefly in 'Aintāb. Between three and four hundred thousand skins

are tanned there annually (Weakley). The best skins are coloured red and the second quality yellow. The tanning process occupies two months. The skins are imported from the districts of Siwas, Kharpūt, Diarbekr, and Bitlis, to the N. and NE. There is a market for this leather in all Syria and in Egypt, North Africa, and Asia Minor. But the competition of European leather tends to diminish the industry. The soles of these native shoes are made of buffalo hide.

Homs, and to a less extent, Hama and Damascus are also centres of the tanning industry. The materials are chiefly sheep and goat skins. In Beirut and Zahleh there are tanneries in which cow-hides are treated. In Zahleh in 1911 there were about 30 small tanneries in which a good box-calf (black) was the chief product.

Building

There is plenty of good building-stone, especially limestone, in most parts of Syria, so that stone-built houses are common. The limestone used for building is taken from the soft layer (known as *meleki*) which lies below the thin hard upper layer (called *mizzeh*). It is easily cut and hardens after some exposure to the air. In Galilee and the Haurān basalt-stone is used. Where sand is not available for making mortar, clay is mixed with lime. Very often fragments of pottery, which are always available, are added to give a better consistency to the mortar. But the result is poor at the best. Modern Syrian masons are skilled in stone-cutting, but the construction of their buildings leaves much to be desired. The roofing is leaky and the walls unstable, unless they are of considerable thickness.

In districts where stone is expensive, and especially in small country villages, houses are built of sun-dried bricks. The walls are then practically mud, faced with a kind of plaster. In Jaffa and Jerusalem and elsewhere there is now much building in which European materials and methods are used. Concrete and iron beams and timber and tiles are largely imported. In Beirut local kiln-burnt bricks are used.

Pottery Making

This is important among the minor industries and widely spread. The places with the highest reputation for pottery (e. g. Gaza) are distinguished by the excellence of the local deposits of clay. The process of manufacture is by the well-known potter's wheel. The piece of pottery is completed in several distinct parts. The bottom of a jug or jar is made first and dried before the remaining parts are added to it. The baking of the pottery takes place in a shallow basin (kiln) 8-10 ft. in diameter and about 4 ft. deep, with the oven built beneath it. The pottery is piled up in this basin and then covered with brushwood during the process of baking.¹ In some districts the industry is in the hands of women.

Other Industries

There are numerous other industries essential to the life of the people and widely distributed over the country, but not highly organized and not specially remarkable. Smiths, saddlers, carpenters, and basket-makers may be named as representatives of ancient crafts that play a necessary but decadent part in the national life. The making of oriental seats and tables and bowls or dishes of copper and brass is still to some extent a specialty of Damascus. These and prayer beads and souvenirs of olive wood and mother-of-pearl, made in Jerusalem or Bethlehem, are extensively bought by tourists. The making of rope and string has been referred to on p. 269. Printing deserves special mention as a modern industry that shows promise of growth. The printing presses of Beirut and Jerusalem are specially active.

The glass industry is peculiar to Hebron. Rings and armlets as well as dishes and jugs are made. A peculiarity is that the articles are now all made from broken glass.

TRADE (GENERAL)

The most reliable figures for the export and import trade of Syria are those officially published for the Turkish financial

¹ Particulars from G. M. Mackie, *Bible Manners and Customs*.

year 1910-11. They are fairly representative of pre-war conditions. They show exports to the value of £3,330,000 and imports to the value of £6,590,000, distributed as follows :

	<i>Exports.</i> £	<i>Imports.</i> £
Alexandretta	1,434,000	1,442,000
Beirut	1,035,000	3,710,000
Jaffa and other ports	865,000	1,438,000

These figures do not include trade with other parts of the Turkish empire. £500,000 may be added to the exports and £400,000 to the imports on this account. On the other hand, the share of Alexandretta, which includes the trade of Mersina and Adalia, on the coast of Asia Minor, is overstated. The Mersina trade of 1910 may be reckoned at £400,000 for exports and at the same amount for imports. In the official figures, above mentioned, neither wine nor tobacco are included. The total export of wine and tobacco in this year was valued at £206,000, and the import of *timbek* into Beirut at £63,000 (Ruppin). When allowance has been made for all these items the total exports amount to £3,636,000 and the imports to £6,653,000.

The great excess of imports over exports is a remarkable feature of these figures. In this respect they agree with the trade returns for the empire as a whole. In 1910-11 the exports of the Ottoman empire, allowing £3,014,000 for tobacco and wine and salt, amounted to £23,086,000, and the imports, allowing £47,000 for *timbek* and other foreign tobacco, amounted to £38,804,000. Large sums are remitted every year to Syria from America and elsewhere by Syrian emigrants. Numerous foreign residents, missionaries, and others, and foreign tourists must also provide a part of the money required to pay for the excess of imports. Government loans and the capital raised abroad in recent years for the building of railways also help to account for the difference. It may be supposed that these are the chief factors in the case.

The fluctuations of imports and exports from year to year are traceable by means of the estimates of the British Consular

Reports for the harbours of Aléxandretta, Beirut, and Jaffa. In the case of Beirut it must be assumed that the figures for imports, and to a less extent those for exports, are too low. Other estimates for the imports of Beirut are therefore substituted in the following table (see p. 297). At least half as much again should probably be added to the Beirut exports.

Exports.

	1908.	1909.	1910.	1911.	1912.	1913.
	£	£	£	£	£	£
Alexandretta	1,466,000	1,308,000	1,301,000	1,044,000	1,020,000	931,000
Beirut .	919,200	791,700	822,500	550,500	525,600	630,800
Jaffa .	556,300	560,900	636,100	710,600	774,100	745,400
	<u>2,941,500</u>	<u>2,660,600</u>	<u>2,759,600</u>	<u>2,305,100</u>	<u>2,319,700</u>	<u>2,307,200</u>

Imports.

	1908.	1909.	1910.	1911.	1912.	1913.
	£	£	£	£	£	£
Alexandretta	1,890,600	2,226,000	1,398,000	1,145,100	1,209,000	930,000
Beirut .	—	[3,640,000]	4,150,000	3,700,000	2,750,000]	—
Jaffa .	803,400	973,100	1,002,400	1,169,900	1,090,000	1,312,600
	<u>—</u>	<u>6,839,100</u>	<u>6,550,400</u>	<u>6,015,000</u>	<u>5,049,000</u>	<u>—</u>

This table shows that Beirut is the principal port of entry and that Jaffa had advanced to the second place before 1913. If the estimates of the values of the Beirut exports are increased as they probably should be, they approach closely to those of Alexandretta. Much of the apparent decline in the totals is merely due to the diversion of trade from Alexandretta to Tripoli (see p. 300). But the war with Italy and the Balkan wars (1911–12) had an adverse influence, especially upon Beirut.

The opening of railways to Tripoli and Haifa has diminished the imports and especially the exports of Beirut. But meantime Aleppo trade, diverted from Alexandretta through Rayāk, has counterbalanced the loss. The decline of Alexandretta as a port is probably only a passing phase. Alexandretta serves a richer and more extensive country than Jaffa and both its imports and its exports may be expected soon to rise again towards their former level.

Regarding the special circumstances of Alexandretta in 1909-13 see p. 300.

Exports

The following detailed figures are those of the Turkish official report of 1910-11. They show that the most valuable article of export from Syria is raw silk (£420,000). Next to it come cocoons (£292,000 including 'waste'), and sheep, goats, and cattle (£260,000). Other important articles of export are oranges and lemons (£226,000), soap (£206,000), wool (£188,000), and tobacco (£160,000). In the returns raw cotton stands above all these. But the export (under the head of Alexandretta) is really from Asia Minor, not Syria. Sesame also is very high (above oranges and lemons), but again export from Asia Minor is included. The Syrian export was about £125,000.

Raw silk and cocoons are exported wholly to France, live-stock is sent chiefly from Alexandretta to Egypt. Oranges and lemons are largely shipped to England, also to Egypt and Odessa; soap is sent to Egypt and parts of Turkey; sesame is exported to Italy; tobacco mostly from Lādiqiyeh to England.

France takes the largest share of Syrian exports, chiefly because of its special relation to the silk trade. In the period 1908-13 it took annually more than two-sevenths of the exports of the three principal ports, according to the returns of the British consular officials (£750,000). Egypt came next with an annual average of £570,000. This, however, includes goods in transit to other countries (see p. 295). After these came Turkey and the United Kingdom. The following table shows a remarkable decline in the exports from Alexandretta and Beirut to the United Kingdom. The British Consular Reports take no special notice of the circumstance. Syrian exports to the United Kingdom were as follows:

	1908.	1909.	1910.	1911.	1912.	1913.
	£	£	£	£	£	£
Alexandretta .	82,200	72,860	24,720	14,220	19,540	12,640
Beirut .	175,000	110,000	70,500	41,000	31,500	13,500
Jaffa .	164,000	158,000	173,000	185,000	190,000	200,000

Imports

The greater part of the imports into Syria consist of (1) yarns and textile fabrics, (2) food stuffs, (3) metals and articles of metal. At the head of the list come cotton fabrics, valued in 1910-11 at about £1,400,000, apart from cotton yarn (£400,000). The principal food stuffs imported were sugar (£465,000), rice (£287,000), flour (£190,000), and coffee (£105,000). Metals and articles of metal, excluding engines and machines, were valued at £620,000. In this sum iron girders, rails, &c., stood for £210,000. Motor engines, railway engines, carriages, and agricultural machines are credited with £190,000. Other important articles of import are petroleum (£215,000), timber (£120,000—less than the average), and skins, leather, and articles of leather (£240,000).

Cotton fabrics and yarns are mostly imported from the United Kingdom and India, to a lesser extent from Italy. Sugar comes chiefly from Austria and Russia, rice from Egypt and India, flour from Russia, Rumania, Bulgaria, and France, coffee from Brazil. Petroleum is imported from Russia (Batum), and to a less extent from America and Rumania. Timber is got from Transylvania and Bukovina. Iron comes from Germany, Belgium, and France, motors from England and Germany, railway material mostly from Germany (for the Bagdad railway).

The imports of the United Kingdom into Syria far exceed the combined totals of the three countries next to it on the list. According to the British consular estimates for the three chief ports its annual average share in the years 1908-13 (£1,786,000)¹ was more than two-fifths of the whole. Austria in the same years had an annual average of £418,000, and France one of £370,000. The corresponding figure for Turkey (£475,000)¹ includes an unknown amount of European goods which are reckoned Turkish because they are shipped to Syria from a Turkish port.

¹ These two figures are calculated in accordance with the adjustment made on p. 309 (cf. p. 296).

Shipping

Most of the Syrian ports are visited weekly by the steamers of six shipping companies, the Messageries Maritimes (services weekly and fortnightly), Oesterreichischer Lloyd (two ships weekly), an Odessa company (weekly service), the Khedivial Mail Line (weekly), the Marittima Italiana (two fortnightly services), and the Servizi Marittimi (two fortnightly services). The French line gives a connexion with Marseilles, Alexandria, and Constantinople, the Austrian with Trieste and Alexandria, the English with Alexandria and Constantinople, the Italian lines with Venice, Genoa, and Greece. Other exclusively merchant ships call at longer intervals (e. g. the ships of the Ellerman, Moss, and Prince lines). The principal port of call is Beirut, with Jaffa not far behind, and Tripoli rapidly approaching Jaffa. Fewer ships visit Haifa and Alexandretta, which take the fourth and fifth places in order. As judged by the amount of their trade these ports stand in another order (namely, previous to 1913, Beirut, Alexandretta, Jaffa, Tripoli, Haifa).

The shipping of the five ports just named in the period 1908–13, measured by tonnage, was mostly British, Austrian, Russian, and French, in that order. French shipping predominated in Beirut. The years 1910–13 do not show the real position of Italian shipping. In 1909 it stood next to the British. See table, p. 316 f.

TRADE OF JAFFA

Exports

The export trade of Jaffa depends mostly upon a few articles for which there is a good demand. Of these, oranges and soap are the most important. In 1912 they were valued at £537,600, out of a total export trade of £774,100. In 1913 the corresponding figures were £497,700 and £745,400. The export of oranges first exceeded 500,000 cases in 1906,

and a million cases in 1912.¹ Of the 1,612,995 cases shipped in 1913, 861,172 were sent to England, 291,024 to parts of Turkey, 233,291 to Egypt, and 152,942 to Odessa. The remainder were sent to Trieste, Hamburg, Marseilles, Rumania, and Bulgaria. In the season 1913-14, of 1,553,861 cases 895,868 were shipped to England, 268,942 to parts of Turkey, and 149,846 to Egypt. The soap is made of olive oil (see p. 279) and is exported chiefly to Egypt and to parts of the Ottoman Empire.

Next to oranges and soap as articles of export come wine and spirits, and then sesame. The average annual value of the former in 1910-13 (£65,000) was much higher than in the preceding four years (£36,400). The principal markets for the wine are Egypt and France. Sesame is exported to Italy

Souvenirs from Jerusalem and Bethlehem are a special feature of the exports from Jaffa. Almonds, although still a small item, will increase because of the planting of new trees. The only cereal of which there is a considerable export is *dhura*. The barley grown in the south of Palestine is exported through Gaza (see p. 258).

Since 1909 Egypt has taken the biggest share of the exports from Jaffa, with the United Kingdom coming second. Since 1907 Egypt and the United Kingdom together have taken much more than one half annually. The Ottoman Empire comes next, and then Russia and France at a considerable interval. The figures for Egypt include, however, goods in transit for France and Russia and other countries. The following are the estimated values of the exports to the United Kingdom and to Egypt since 1908 :

	1908.	1909.	1910.	1911.	1912.	1913.
	£	£	£	£	£	£
United Kingdom	164,000	158,000	173,000	185,000	190,000	200,000
Egypt . . .	165,000	255,000	277,300	270,000	290,000	265,000

¹ According to the figures of the British Consular Reports. The *Deutsches Handelsarchiv* reports as follows :

	1910.	1911.	1912.
Cases	1,115,495	1,058,589	1,385,703

Imports

The year 1906 showed a marked rise in the value of the imports into Jaffa (from £464,000 to £660,000), and in the year 1913 the importation was nearly twice in value what it had been in 1906. Except that the importation of cotton goods remains almost stationary the increases have been well distributed over the chief imports. The greatest increases are in timber and food stuffs (flour, rice, and coffee). The timber is required for the making of orange boxes and for building. Olive oil and caustic soda are required for the manufacture of soap and petroleum for stoves and irrigation motors. In 1912 and 1913 the importation of motor engines and of coal showed marked increases.

The shares of the different countries in the import trade is shown by a table on p. 309. The official figures, except in the year 1909, credit British goods shipped from Beirut and Smyrna to Turkey. As the necessary correction of these figures cannot be made exactly it can only be said, generally, that the imports from the United Kingdom greatly exceed those of other countries and are steadily increasing. Judging by the figures for 1909 the corrected estimates for the United Kingdom, as given in the table, are still too low. Next to the United Kingdom, and apart from Turkey, come Austria, Russia, and France. The share of Germany is probably understated in the official figures. It was exceptionally high in 1913. Imports from the British colonies in the years 1911-13 were valued at £49,000, £54,000, and £69,000 respectively.

Shipping

The table on p. 316 f. shows the tonnage of the shipping of the nationalities chiefly represented during the years 1908-13. The decrease of Italian shipping in 1911-12 was due to the Turko-Italian war. British shipping maintained its pre-eminence throughout. The average number annually of all steamers calling at the port in 1909-13 was 668. Of these 192 were British. British steamers in 1913

carried 10,215 of the 35,662 passengers who embarked at Jaffa. The figures exclude passengers with return tickets other than Russian pilgrims. The oranges exported to the United Kingdom are shipped to Liverpool by the Ellerman and Moss Lines (Liverpool), by the Prince Line (Newcastle), and by Scandinavian boats chartered by a firm registered in London.

TRADE OF BEIRUT

Data for the trade of Beirut are specially difficult to obtain. The British Consular Reports give estimates of imports that are always less than those of the German and United States consular officials. The difference is so great as to suggest that some large class of imports has been included in the one case and excluded in the other (e.g. re-exported goods or goods in transit to Damascus). The higher figures are supported by the Turkish official report for the year 1910-11. A smaller discrepancy in the case of the exports may be explained in the same way. Here the British estimates and those of the United States are lower than the German estimates, which are supported by the Turkish return. The table on p. 299 gives the data accessible to the present writer.

The imports into Beirut that were re-exported in the years 1909-12 had an average annual value of £598,000, without much variation (*Deutsches Handelsarchiv*). The materials for the detailed tables of exports and imports on p. 310 f., have been taken from the *D.H.A.* and from the Turkish report for the year 1910-11. Estimates of value have been found only for the years 1909 and 1910-11. It is evident that the Turkish classification and that of the *D.H.A.* are not always identical.

Exports

The most valuable article of export from Beirut is raw silk (worth more than £350,000 annually). To this cocoons (and 'waste') add about £80,000 annually. The amount of wool exported fluctuates a good deal and has been

diminished by the opening of the Tripoli railway. But it still ranks next in value to raw silk. Butter, apricot paste (from Damascus), nuts, hides, and intestines (for making sausages) are amongst the more important of the other exports. During the years 1909-12 the wheat and barley harvests were poor. Previous to 1909 cereals in a good year were important exports from Beirut. They are now more likely to pass through Tripoli and Haifa. For some years previous to 1913 there was a considerable export of lace, chiefly to the United States. In 1912 it was valued at £87,500. In 1913 the demand ceased, owing, it is said, to a change of fashion. Amongst the imports re-exported from Beirut cotton fabrics stand for a large amount.

On the figures of the British Consular Reports France takes fully three-quarters of the total exports of Beirut in an average year. This large proportion is explained by the exclusive export of raw silk and cocoons to France. The share of the United Kingdom, on the same figures, has diminished every successive year since 1908 (see p. 292). Until 1912 its share was second to that of France. In 1913 Egypt, the United States, and Turkey stood before it.

Imports

The cotton fabrics, which are the principal article of import into Syria, nearly all enter by the port of Beirut. The share of the other ports is usually re-exported from there. Yarns and cloth and silk materials also swell the Beirut trade. Metals and railway materials, on the other hand, are distributed over the various ports, and Beirut does not receive more than a one-third share. Food-stuffs (especially sugar, rice, and coffee) come next in value to textiles and yarns. Hides and leather and petroleum are other items of importance. Coal and briquettes remain at a constant figure. Coal is used by the railway, gas, tram, and electric light companies as well as, sometimes, for the coaling of warships. Briquettes are used in the silk factories of Lebanon.

BEIRUT—EXPORTS

	1908.	1909.	1910.	1911.	1912.	1913.
Weight in tons	72,819	65,461	50,934	52,926	53,000	64,107
After deduction of re-exports	64,347	54,071	40,332	38,980	41,134	49,248
	£	£	£	£	£	£
British Consular Reports	919,200	791,750	822,500	550,500	525,600	630,800
United States Consular Reports	—	—	692,000	811,000	599,000	—
German Consular Reports	—	1,300,000	—	1,500,000	1,250,000	—
Turkish Official Report, 1910-11	—	—	1,035,000	—	—	—

BEIRUT—IMPORTS

	1908.	1909.	1910.	1911.	1912.	1913.
Weight in tons	179,140	216,096	243,899	230,652	156,993	213,230
Less transit trade	170,669	204,706	233,297	216,706	145,055	198,844
	£	£	£	£	£	£
British Consular Reports	1,692,500	1,655,500	2,153,200	1,920,400	1,497,500	2,175,000
United States Consular Reports	—	—	3,685,300	3,538,700	3,089,200	—
German Consular Reports	—	3,640,000	4,150,000	3,700,000	2,750,000	—
Turkish Official Report, 1910-11	—	—	3,710,000	—	—	—

The countries of origin of the various imports have been named on p. 293. The United Kingdom stands at the head of the list, chiefly because of its share in the import of textiles and yarns. Italy comes generally second, Austria third, Germany fourth, and France fifth. Some of the Austrian trade should probably be reckoned to Germany. Amongst the articles of import not named on p. 293, coal comes chiefly from the United Kingdom and briquettes from the United Kingdom and France.

In 1910 the imports were specially high, in 1911 and 1912 the unfavourable conditions caused a decline, in 1913 there was a recovery towards normal. The large increase of transit trade to Aleppo has fully compensated for the recent loss of trade to Tripoli and Haifa.

Shipping

During the years 1908-13 the highest proportion of the shipping of Beirut (measured in tonnage) was always French. British and Italian ships came next, close together in normal years, and not far behind the French ships. After these came Austrian and then German shipping. See p. 316 f.

TRADE OF ALEXANDRETTA

The period covered by the table of exports and imports (on p. 314 f.) was very unfavourable for the trade of the north of Syria. In 1909 the harvest in the vilayet of Aleppo was a failure and the political conditions were disturbed (Armenian massacres). The winter of 1910-11 was very severe and destroyed 80 per cent. of the sheep in some districts. 1911-12 was the time of the Italian war, and 1912-13 that of the Balkan wars. In 1912 there was cholera in the province. The opening of the railway line to Rayāk (1906) did not much affect the trade of Alexandretta for a few years, but ultimately both it and the Homs-Tripoli line (opened 1911) diverted a large amount of trade to the ports of Beirut and Tripoli. The building of the Bagdad railway (commenced

April 1911) and of the branch line between Alexandretta and Toprakale (opened November 1913) had only a partial effect in favour of Alexandretta during 1913. The construction of a direct railway line between Aleppo and Alexandretta is urgently necessary in the interests of the port and of north Syrian trade. Transport between Aleppo and Alexandretta by means of camels takes six or seven days.

Exports

The average annual value of the exports of 1906-8 was £1,460,100 and did not vary much from that figure. A heavy fall in the export of wool commenced in 1907 and another in textiles in 1908. In 1909-11 heavy decreases took place in the export of cereals and seeds (beginning 1909), butter (1910 and 1911), leather and skins (1911). The general result is shown in the table on p. 315. In contrast it may be noted that the average annual value of the wool exported in 1904-6 was £138,300, of textiles in 1904-7 £262,800, and of cereals in the good years 1905 and 1906 £77,500.

The principal exports throughout the period 1908-13 have been live-stock, textiles, and silk cocoons, in that order. In 1912 they represented £424,500 out of a total of £1,020,400, and in 1913 £504,200 out of £931,800. Both live-stock and cocoons maintain the level they held in former years. The value of the export of the former in the years 1904-7 was £201,400 annually. In 1907 and 1908 the export of cocoons was specially high. Cattle and sheep are exported principally to Egypt and are reared beyond the boundaries of Syria (see p. 273). Textiles are exported to other parts of the Turkish Empire and cocoons to France.

The only exports that show a marked advance are pistachio nuts (since 1908) and oranges and lemons (since 1909). In 1904-7 the average annual value of the former was only £33,700 and of the latter £14,900. The export of liquorice to America (see p. 272) maintains its level. The copper exported is mined at Argana, near Diarbekr. Of other articles of export not given in the table, gall-nuts and yellow berries

had an average annual value of £28,100 in 1908-11 and of £17,300 in 1912-13.

More than half the exports from Alexandretta are shipped to ports of the Turkish Empire and to Egypt. In 1911-13 the exports to Egypt maintained themselves proportionately better than those to parts of Turkey. France and the United States take the next biggest shares. In the five years 1903-7 the average value of the exports to the United Kingdom was £113,470 annually. Regarding the fall since then, see p. 292. The following are the values of the exports to Turkey, Egypt, and France in 1908-13:

	1908.	1909.	1910.	1911.	1912.	1913.
	£	£	£	£	£	£
Turkey . . .	461,200	506,700	525,200	397,200	308,200	235,000
Egypt . . .	394,000	272,400	322,700	209,000	258,700	323,700
France . . .	220,900	194,800	189,000	178,400	133,400	140,800

Imports

The value of the annual imports into Alexandretta in the years 1904-7 did not vary much from the annual average of £2,334,200. The Aleppo-Rayāk railway began to show its influence on the imports in 1908, and this and other causes (see above) finally reduced the imports of 1913 (£930,470) to half the value of those of 1908. The temporary rise in 1909 was in part due to the charitable importation of clothing and food for the Armenians (Consular Report).

The chief articles of import are cotton stuffs and yarns. Next to these come silk goods. There is also a considerable import of woollen goods, for which there is most demand in the north of Syria, owing to the climate. Raw silk, indigo, and other dyes, copper, caustic soda, and buffalo hides, as well as cotton and woollen yarns, are imported for use in native industries. The buffalo hides from India and China are used for making the soles of native shoes. Provisions, especially flour and sugar, are also imported to a considerable amount.

The chief importing countries, in order, are the United Kingdom, the Turkish Empire, Austria, and France (see

table, p. 315). Previous to 1910 Italy came next and then Germany. Of the first four Turkey was least affected by the decline of the years 1908-13. Germany maintained its position owing to her importation of material for the Bagdad railway. The United Kingdom sends chiefly cotton and woollen stuffs and yarns. Cotton yarn is also imported from India and from Italy (along with cotton stuffs). The importation of these articles into the vilayet of Aleppo has not decreased to the extent apparently shown by the returns for the port of Alexandretta. A large part of the imports for Aleppo now pass through Beirut and Tripoli. The coal landed in Alexandretta comes from Belgium and the Black Sea, and is mostly used by the liquorice factories in the town. The average import for the years 1911-13 was 750 tons annually.

Shipping

During the years 1908-13 the tonnage of the steamers visiting the port of Alexandretta remained fairly constant in spite of the disturbed conditions (annual average 612,000 tons). In 1912 and 1913, however, a large proportion of the ships entered or cleared without cargo. The average number of visiting steamers in 1908-13 was 454. The sailing ships in the same years averaged 550 (5,771 tons). The average number of British steamers visiting the port annually was 146 (with a capacity of 171,000 tons). Next came the Russian ships, fewer in number but larger. Italy would probably have stood third, or even second, but for the war. See further the table on p. 316 f.

TRADE OF TRIPOLI

The opening of the Homs-Tripoli railway, in June 1911, gave a great impetus to the trade of this port. At first the new line carried chiefly material for the building of the Bagdad railway. By the end of 1912 most of the imports into Aleppo passed through Tripoli. The principal exports are oranges, silk, and soap, from the town and its neighbourhood, and cereals from the plains of Homs and Hama. The following

(maximum) figures from the British Consular Reports show the trade of the years 1911-13 :

	1911.	1912.	1913.
	£	£	£
<i>Exports</i>	450,000	400,000	800,000
<i>Imports</i>	420,000	1,000,000	1,250,000

In 1913 the exports of wool, hides, oranges, cocoons, and olive oil were more than double those of the previous year, and the export trade was rapidly approaching the totals of the principal Syrian ports (p. 291).¹ In 1901 the imports were estimated at about £300,000. In 1912 and 1913 their amount was similar to the totals of Jaffa and Alexandretta. 84,000 tons of rails for the Bagdad line and 9,000 tons of coal were transported by rail to Aleppo in 1912. In 1913 the value of the Bagdad railway material sent through Tripoli was estimated at £110,000.

The *shipping* of Tripoli in the period 1908-13, measured by tonnage, stood consistently next to Jaffa and not far behind it (see table, p. 316 f.).

TRADE OF HAIFA

The growth of Haifa as a port dates from the opening of the railway line in 1906. It has diverted from Beirut some of the export of the grain of the Haurān and some of the import trade with Damascus and Arabia. The following imperfect table gives an indication of the progress of the years 1907-13. The figures have been taken from several sources and those in brackets are little more than guesses. It is important to note that railway material seems not to be included in the estimates of imports.

	1907.	1908.	1909.	1910.	1911.	1912.	1913.
	£	£	£	£	£	£	£
<i>Exports</i>	272,700	371,700		70,500	90,000	346,700	
<i>Imports :</i>							
Foreign	199,000	284,500	271,400	289,100	295,100	[400,400][480,000]	
From Turk- ish ports . . .	41,000	71,000	—	[70,000]	[50,000]		
Coal	—	—	—	[40,000]	[30,000]		
<i>Total Imports</i>	240,000	355,500	—	399,100	375,100	460,400	530,000

¹ The exports from Beirut are underestimated in the British Consular Reports and so were still above £800,000 in 1913 (see p. 299).

Including coal and railway material the imports probably exceeded £500,000 and even £600,000 some years before 1913. The following are the totals of the *D.H.A.* (November 1912) for the years 1909–11:

	1909.	1910.	1911.
	£	£	£
<i>Imports</i>	574,000	616,000	575,000

The same report gives £160,000 and £175,000 as the value of the exports in the years 1910 and 1911 respectively. The exports for 1910 and 1911 were low because of a bad harvest (1910) and war conditions. Previous to the opening of the railway there was an import trade of less than £200,000 annually and an export trade of considerably more (British Consular Reports).

The *shipping* of Haifa is proportionately much in excess of its trade. In the period 1908–13 it exceeded that of Alexandretta and stood next to that of Tripoli (see table, p. 316).

For further details of the trade of Haifa, see Chap. xv, p. 493 f.

TRADE OF GAZA

Ships call here only occasionally, especially for the purpose of loading the barley exported to England. The annual value of the *exports* varies very much, according to the harvest. 1908 and 1913 were specially good years. Wool and butter are also exported to some extent.

	1908.	1909.	1910.	1911.	1912.	1913.
	£	£	£	£	£	£
<i>Total exports</i>	206,240	49,760	8,550	77,150	67,000	161,120
Barley	196,840	4,620	—	48,000	47,600	143,800
Wheat	8,400	12,500	—	12,000	730	—

Imports reach Gaza through Jaffa. Their average annual amount in the years 1906–11 was valued at £72,000, in 1912 at £96,400, and in 1913 at £108,200.

For further details of the trade of Gaza, see Chap. xiv, p. 456 f.

TRADE OF DAMASCUS

Separate consular reports on the trade of Damascus are published annually. There is a large demand for imports in the town and its neighbourhood. The district is, also, an important centre of supply of exports (grain, fruit, articles of native dress, &c.). The external trade of Damascus has long passed through Beirut. An increasing part of it is now being diverted to Haifa.

The *exports*, as reported by the British consuls, have greatly increased in recent years. In 1903-5 their average annual value was £392,600, in 1906-8 the average was £646,400, and in 1909-11 it was £993,200. The increase since 1909 has been due to a series of good harvests. Wheat and barley were exported in the years 1909-11 to an average annual value of £410,000. In the same years the annual export of cotton fabrics and of mixed silk and cotton fabrics was valued at £243,000. Other exports largely represented were wool, chickpeas, and apricots (dried, paste, and kernels). On a lower level of importance were carpets, skins, brass and copper goods, mother-of-pearl, liquorice, and walnuts.

Imports show little variation in the years 1906-11 (average annual value £924,000). Three-quarters of this amount are taken by places external to the town of Damascus. The leading articles of import are cotton goods and yarns (nearly one-third of the whole), woollen goods, raw silk, and silk goods. Tobacco is largely and increasingly imported (to the value of £86,000 annually in 1909-11). Several food-stuffs (sugar, coffee, rice) stand high on the list. Hardware and metals, especially brass and copper, stand for about £47,000 annually (1909-11). Charcoal is expensive and this favours the use of petroleum for cooking-stoves (£26,000 annually). Leather and dyes amount to about £20,000 annually. Austria supplies the market with fezzes (£17,000 worth per annum). In 1912 sewing-machines were imported to the value of £23,000, and in 1913 to the value of £25,000.

JAFFA—EXPORTS

	1908.	1909.	1910.	1911.	1912.	1913.
	£	£	£	£	£	£
<i>Total value</i>	556,370	560,930	636,140	710,660	774,160	745,410
Dhura	14,400	20,400	11,400	11,900	20,200	9,500
Lupines	14,500	26,500	13,400	13,100	10,600	12,500
Oranges and lemons	168,900	185,800	235,600	217,500	283,600	297,700
Raisins		3,470	7,500	8,670	11,000	10,400
Almonds		365	810	1,370	5,700	9,000
Water melons and other fruits	22,100	31,500	37,260	42,000	25,000	34,000
Sesame	54,700	50,400	37,230	98,000	30,100	31,300
Oil (olive and sesame)	275	7,950	6,680	14,980	4,000	6,270
Soap	141,300	145,400	157,900	144,300	254,000	200,000
Wines and spirits	42,300	33,500	60,900	77,600	60,400	60,500
Cattle		1,070	5,430	5,100	4,500	5,200
Hides	10,300	9,500	16,500	17,100	7,400	10,500
Souvenirs	26,700	8,600	12,200	19,100	22,000	20,800

JAFFA—IMPORTS

	1908.	1909.	1910	1911.	1912.	1913.
<i>Total value</i>	£	£	£	£	£	£
Cotton goods	803,400	973,100	1,002,400	1,169,900	1,090,000	1,312,600
Cloth	231,700	261,700	244,500	262,300	243,000	240,800
Coffee	13,690	15,590	12,680	14,200	14,870	15,000
Flour	26,300	24,500	21,600	22,000	30,000	51,900
Sugar	33,900	38,100	91,100	122,700	42,700	150,600
Rice	38,600	61,300	67,500	64,800	41,600	53,600
Tobacco	55,200	70,600	52,500	60,800	46,400	63,400
Olive oil	58,500	54,400	67,000	72,200	50,000	67,300
Provisions (e. g. tinned)	15,400	9,300	24,100	31,700	30,000	48,800
Fish (salted)		21,800	19,200	21,600	30,000	33,200
Iron (bars, girders, plates)	34,900	16,500	17,000	23,200	20,000	24,200
Hardware	41,100	29,900	21,900	25,200	36,500	32,200
Copper and other metals	4,990	5,300	23,700	28,400	15,000	19,000
Machinery	11,900	19,200	17,900	14,600	20,000	15,300
Motors		7,270	7,085	7,380	14,000	12,750
Petroleum	45,488	45,480	44,380	42,700	30,500	81,000
Coal	14,900	11,500	5,015	11,700	24,700	20,300
Timber	47,200	42,300	46,000	80,400	100,000	107,000
Chemicals and manure		8,280	8,870	9,000	14,600	10,500
Caustic soda	8,540	7,310	10,520	13,900	12,000	12,700
Cattle		27,300	22,300	40,600	36,000	28,000
Hides		18,100	16,500	19,700	14,700	15,800

JAFFA—IMPORTS (BY COUNTRIES)

	1908.	1909.	1910.	1911.	1912.	1913.
	£	£	£	£	£	£
United Kingdom	80,000	321,348 ¹	128,700	146,000	155,000	170,000
United Kingdom, corrected estimate ¹	—	—	298,700	326,000	325,000	340,000
Turkey	260,000	107,042 ¹	328,900	340,000	305,000	325,000
Turkey, corrected estimate ¹	—	—	158,900	160,000	135,000	155,000
Austria	85,000	93,200	83,800	114,000	126,000	143,000
Russia	69,000	96,000	97,000	108,000	110,000	120,000
France	54,000	64,700	103,000	112,000	84,000	115,000
Germany	56,000	87,300	68,600	74,000	80,000	102,000
Egypt	49,000	69,400	58,000	70,000	61,000	72,000
Belgium	42,000	39,600	49,100	60,000	54,000	72,000

¹ See page 296.

BEIRUT¹—EXPORTS

	1908.	1909.	1910.	1911.	1912.	1910-11.
	tons	tons	tons	tons	tons	£
Wheat	12,652	3,757	1,213	187	1,998	33
Barley	18,773	13,066	3,794	1,670	3,445	1,674
Burghul		970	1,218	1,121	1,300	621
Peas and beans		2,665	1,675	1,255	1,777	1,500
Lemons			442	522	693	83
Raisins		152	171	469	370	310
Apricots (dried)		414	312	681	440	182
Apricot kernels		644	447	1,068	447	—
Apricot paste		2,017	6	3,401	2,832	3,686
Dates			141	286	227	24
Other fruits		578	1,047	889	1,009	—
Nuts		—	—	—	—	—
Liquorice		903	—	1,079	733	808
Tobacco	200	210	204	214	231	333
Olives		172	—	247	297	123
Olive kernels		210	1,119	395	756	—
Olive oil		161	199	223	238	—
Soap			145	148	63	8,500
Spirits		—	63	63	67	1,500
Wine	167	155	180	146	168	—
Skins			314	548	365	—
Leather			301	223	260	—
Wool	1,700	2,952	3,116	3,276	1,011	37,300
Butter		553	1,249	418	460	2,134
Intestines		—	—	—	—	543
Raw cotton			108	73	33	70
Cocoons, &c.	235			290	271	136
Raw silk	350	305	264	267	253	278
						342

¹ For total values of exports and imports see p. 299.

BEIRUT—IMPORTS

	1908.	1909.	1910.	1911.	1912.	1910-11.	1910-11.	1909.
	tons	tons	tons	tons	tons	tons	£	£
Cotton fabrics.	10,023	10,553	10,474	10,565	9,178	9,544	1,202,000	1,270,000
Cotton yarn .	1,456	1,630	1,858	1,794	1,426	2,029	166,000	120,000
Raw cotton .	174	262	157	112	91	219	4,000	7,500
Raw silk .	218	126	172	129	84	153	105,000	125,000
Silk fabrics .	69	87	102	152	103	122	85,000	100,000
Cloth .	469	504	609	583	502	252	130,000	100,000
Woollen article:	124	82	106	107	60	174	63,000	30,000
Woollen yarn .	80	38			32	32	5,300	15,000
Wool .	25	129	156	72	89	—	—	—
Coffee .	1,479	1,579	1,139	1,018	880	1,148	60,000	73,000
Flour .	1,208	1,267	9,376	7,029	1,442	3,607	36,000	8,000
Sugar .	8,908	10,676	9,451	10,176	4,813	10,843	170,000	180,000
Rice .	6,450	7,883	10,121	6,300	4,251	9,030	95,000	82,500
Tobacco.			1,716	1,307	1,204	—	—	—
Iron and steel		4,541	6,456	6,285	6,569	5,996	45,000	29,000
Iron pipes, safes, &c.		1,348	1,037	1,284	442	1,751	38,000	10,500
Hardware .	1,859	1,863	2,244	2,374	1,942	1,863	60,000	50,000
Copper and brass	338	367	607	399	240	590	42,000	26,000
Other metals .	205	204	—	—	—	—	—	—
Machines and instruments	3,603	1,621	1,366	953	599	1,710	40,000	50,600
Petroleum .	7,978	11,129	13,826	10,212	5,024	13,982	80,500	82,500
Coal .	14,095	19,996	20,736	17,773	12,466	42,776	48,000	52,000
Briquettes .	26,557	34,485	30,369	21,109	19,699			
Timber .	14,936	19,071	16,772	17,582	12,421	17,554	48,000	70,000
Chemicals, dyes, and caustic soda	677	973	1,237	985	714	1,054	22,500	33,600
Soap .			795	505	558	189	6,000	—
Paper .	1,055	1,953	1,038	1,065	1,194	1,544	30,000	20,700
Leather .	380	911	865	838	902	591	72,000	
Hides .			905	705	398	913	55,000	160,000

BEIRUT—IMPORTS (BY COUNTRIES)

	1908.	1909.	1910.	1911.	1912.	1913.
	£	£	£	£	£	£
United Kingdom	710,000	665,000	933,000	902,000	748,500	1,014,500
Italy	•	160,000	257,000	190,000	47,500	185,000
Austria	•	165,000	165,000	172,500	134,500	210,000
Germany	•	170,000	162,000	145,000	129,000	160,000
France	•	145,000	130,000	130,000	121,000	175,000
Belgium	•	90,000	93,000	55,000	71,000	90,000
Turkey	•	31,000	27,000	78,000	47,000	38,000
Egypt	•	13,500	12,500	23,000	62,000	102,000

ALEXANDRETTA—EXPORTS

	1908.	1909.	1910.	1911.	1912.	1913.
<i>Total value</i>	£	£	£	£	£	£
Cereals	1,466,900	1,308,600	1,301,000	1,044,300	1,020,400	931,800
Burghul, &c.	29,300	4,468	4,465	7,360	9,165	4,660
Oranges and lemons	26,100	14,400	18,600	14,500	14,000	11,100
Raisins and figs	13,800	24,200	25,000	32,200	35,400	31,800
Almonds and apricot kernels	2,838	760	3,869	10,900	5,332	2,720
Pistachio nuts	8,354	9,554	4,862	7,978	4,634	9,720
Liquorice	53,100	55,500	66,600	52,100	66,300	93,800
Olive oil	158,500	58,000	85,500	28,900	138,000	53,300
Sesame and other seeds	8,350	3,260	3,430	6,280	1,420	990
Soap	16,000	7,630	5,050	3,080	2,280	2,880
Cattle, sheep, &c.	33,200	22,800	46,600	46,100	32,100	24,400
Leather and skins	253,100	161,100	239,000	146,500	192,100	261,900
Wool	61,200	100,500	89,700	56,100	52,100	56,500
Butter	56,500	82,000	55,100	37,400	17,600	4,440
Cotton	92,300	137,100	61,600	22,600	24,500	16,200
Textiles	28,600	10,800	50,700	28,600	33,800	26,800
Cocoons	147,000	177,000	193,100	162,800	129,400	104,000
Copper ore, &c.	188,200	157,300	163,100	158,300	103,000	139,200
Specie	50,800	65,800	6,500	72,200	50,200	15,500
	119,200	125,800	95,000	75,500	52,500	23,800

ALEXANDRETTA—IMPORTS

	1908.	1909.	1910.	1911.	1912.	1913.
<i>Total value.</i>	£	£	£	£	£	£
Cotton goods and yarn	1,890,600	2,226,300	1,398,800	1,145,100	1,209,600	930,470
Silk goods	832,200	1,015,800	524,500	401,700	501,000	349,200
Raw silk	177,600	213,300	134,000	77,200	68,400	58,600
Woollen goods and yarn	24,600	43,300	60,800	36,600	36,000	22,800
Coffee	91,800	108,000	67,200	52,600	43,700	39,300
Flour, &c.	9,360	15,100	4,270	5,780	8,500	5,260
Sugar	23,000	80,600	84,100	77,700	55,200	60,100
Rice	30,400	35,300	20,500	25,400	34,400	36,800
Tobacco	3,400	6,400	8,240	4,910	5,700	6,060
Iron and ironware	17,900	27,800	25,400	30,200	31,200	28,000
Copper	30,000	27,700	23,100	25,700	21,700	26,400
Other metals	22,700	22,700	22,200	18,400	17,100	7,790
Petroleum	37,000	37,600	24,600	21,600	19,600	18,500
Coal	28,600	44,200	20,800	27,100	21,800	44,400
Indigo	912	1,744	500	575	1,200	1,400
Other dyes	34,600	51,100	21,400	12,500	15,000	7,010
Drugs and chemicals	11,400	15,600	14,600	10,800	8,000	6,500
Caustic soda	32,800	30,800	19,800	18,600	17,600	13,300
Hides and leather	11,200	12,700	12,800	9,600	7,700	7,200
Specie, bullion, &c.	104,700	95,800	58,200	51,100	38,100	27,400
Railway and building material	132,800	126,200	91,900	86,400	54,100	29,700
	—	—	—	—	41,030	57,610

ALEXANDRETTA—IMPORTS (BY COUNTRIES)

	1908.	1909.	1910.	1911.	1912	1913.
	£	£	£	£	£	£
United Kingdom	906,500	1,063,100	547,800	445,400	572,700	364,400
Turkey	310,600	359,500	284,500	286,300	266,000	198,900
Austria	186,200	216,800	159,500	100,400	86,700	90,400
France	190,900	214,700	170,500	120,600	87,600	61,600
Italy	95,900	131,100	75,400	37,600	440	26,400
Germany	70,000	80,400	48,900	38,500	71,000	76,600
Belgium	45,700	58,300	46,000	41,400	33,600	38,900
Egypt	41,300	41,900	33,000	29,900	50,900	18,700

SYRIAN SHIPPING—ANNUAL TONNAGE

		1908.	1909.	1910.	1911.	1912.	1913.
British							
Jaffa	.	213,600	275,000	250,900	292,700	315,800	270,300
Beirut	.	288,300	302,400	317,600	359,600	323,600	305,800
Alexandretta	.	183,800	172,300	156,300	165,600	175,700	172,200
Tripoli	.	178,000	177,200	183,400	209,300	204,500	213,400
Haifa	.	181,100	183,300	167,700	233,300	201,100	189,900
		<u>1,044,800</u>	<u>1,110,200</u>	<u>1,075,900</u>	<u>1,260,500</u>	<u>1,220,700</u>	<u>1,151,600</u>
Austrian							
Jaffa	.	189,300	183,000	178,600	211,700	213,600	228,400
Beirut	.	190,100	190,500	219,500	214,300	180,100	273,800
Alexandretta	.	93,100	86,500	113,400	106,300	103,800	120,100
Tripoli	.	175,000	181,400	206,100	198,100	216,800	229,000
Haifa	.	169,600	175,100	98,200	209,100	207,100	236,500
		<u>815,100</u>	<u>815,500</u>	<u>815,800</u>	<u>939,500</u>	<u>921,400</u>	<u>1,087,800</u>
Russian							
Jaffa	.	146,600	184,100	184,700	156,600	174,500	212,400
Beirut	.	148,900	197,600	235,600	198,600	188,000	245,400
Alexandretta	.	96,300	167,300	160,200	138,000	158,000	201,000
Tripoli	.	140,400	169,100	179,400	139,600	168,300	167,000
Haifa	.	132,100	159,600	278,200	144,400	166,400	193,500
		<u>664,300</u>	<u>877,700</u>	<u>1,038,100</u>	<u>777,200</u>	<u>855,700</u>	<u>1,049,300</u>

SYRIAN SHIPPING—ANNUAL TONNAGE (*continued*)

	1908.	1909.	1910.	1911.	1912.	1913.
French						
Jaffa	•	189,200	172,900	191,800	192,500	213,200
Beirut	•	347,900	388,000	394,600	399,500	476,500
Alexandretta	•	59,700	53,000	55,000	62,300	54,600
Tripoli	•	104,100	151,600	143,500	124,900	191,800
Haifa	•	63,000	65,600	69,000	76,000	49,300
		763,900	831,100	853,900	855,200	985,400
Italian						
Jaffa	•	180,300	205,000	140,600	56,100	104,200
Beirut	•	292,600	349,000	287,100	161,000	250,100
Alexandretta	•	105,900	122,500	78,700	29,500	41,800
Tripoli	•	111,600	128,300	105,400	68,300	158,600
Haifa	•	114,800	130,000	82,600	33,100	65,400
		805,200	934,800	694,400	348,000	620,100
German						
Jaffa	•	40,100	62,900	84,100	60,100	78,600
Beirut	•	54,300	57,500	66,500	61,600	93,900
Alexandretta	•	14,500	18,400	14,100	24,400	51,800
Tripoli	•	13,800	6,100	12,100	37,400	88,000
Haifa	•	30,400	13,500	17,800	21,300	49,400
		153,100	158,400	194,600	204,800	361,700
					293,700	

CHAPTER IX .

CURRENCY, WEIGHTS AND MEASURES

CURRENCY

Table of Money

1 piastre (silver or nickel)	=4 metallik =40 paras
(unit of reckoning only)	=0·2273 franc
1 beshlik (copper or silver)	=2½ piastres
1 mejīdi (silver)	=20 "
1 £T. (Turkish gold līrah)	=100 "

The present currency of Syria dates from 1884, when the gold *līrah* was made the unit of the currency of the Ottoman Empire. It was declared equivalent to 100 piastres (*qirsh sāgh*, or 'gold' piastre), and a silver piastre coin of this value was put in circulation. Another piastre, having no coin as its equivalent, and without legal sanction, is the ordinary unit of market prices in Syria (*qirsh shuruq*, or 'market piastre'). Its value in terms of the līrah varies from town to town, and the following table, given by Ruppīn,¹ shows the extent of these local variations :

1 līrah =123 piastres in Tripoli	1 līrah =125 p. in Saida
=124 p. in Homs and Jeru-	=127 p. in Aleppo
saalem	=130·3 p. in Damascus
=124·25 p. in Beirut and	=141 p. in Jaffa
Lādiqīyeh	=255 p. in Gaza

The principal silver coin in circulation is the mejīdi, nominally one-fifth of the gold līrah. Owing to the fall in the value of silver after 1844, the Turkish mint ceased to coin silver freely, and by 1880 the value of the mejīdi had fallen by 8 per cent. The līrah was thus equivalent to 108 silver piastres. To check this depreciation the Government began

¹ *Syrien als Wirtschaftsgebiet*, von Dr. A. Ruppīn. Berlin, 1917.

to receive the mejidi as legal tender, and its value was fixed at 19 silver piastres and that of the liral at 102·6 piastres. This measure created a new Government piastre. Still the mejidi circulated below its new nominal value—at about 18½ piastres.

A further peculiarity of the currency under the Ottoman régime was that money-changers would only change gold coins at a discount of from 1 to 2 per cent. This exaction was possible owing to the scarcity of small coins.

The only Turkish paper money previous to the war, the notes of the Ottoman Bank, did not circulate generally in Syria.

The coins in circulation were the following :

<i>Silver.</i>	<i>Copper.</i>	<i>Nickel.</i>
1 mejidi	1 beshlik	1 metallik
$\frac{1}{2}$ „	$\frac{1}{2}$ „	$\frac{1}{2}$ „
$\frac{1}{4}$ „	$\frac{1}{2}$ „	$\frac{1}{2}$ „
1 piastre		4 „
$\frac{1}{2}$ „		

A last attempt to deal with the currency was made by the Ottoman Government in April 1916. The mejidi again became equivalent to one-fifth of a liral, or 20 piastres, and silver coins became legal tender up to the amount of 300 piastres.

French gold 20-franc pieces (official rate, 87½ ‘gold’ piastres) were, before the war, the most universally current form of foreign money in circulation, but the £ sterling (official rate, 110 ‘gold’ piastres) and Russian gold (imperials, 15 roubles, and also 10 and 5-rouble pieces) passed practically everywhere. Foreign silver is prohibited all over the Turkish Empire, but French and Swiss francs and English shillings were taken at the sea-ports and in Jerusalem and Damascus ; German, Italian, Greek, and other silver coins were generally refused. Egyptian money was refused everywhere.

For trading purposes, however, different valuations of foreign gold coins were in vogue in the large towns of Syria, and prices of commodities and produce were expressed in these local valuations. According to Weakley, 1911, the

following variations in the local value of the 20-franc piece and the £ sterling were shown :

	20-franc piece, in piastres.	£ sterling. in piastres.
Beirut	108·3	135·3
Damascus	114	143·5
Aleppo	110·3	138·3
Tripoli	107·15	135
Homs	108	136
Lādiqiyeh	108·3	136·3
Jaffa	124·15	156·1
Saida	109	137·2

The current local rates had come into such general use that all banking establishments in the country found it necessary to keep their accounts in local piastres.

WEIGHTS AND MEASURES

The only system legally recognized is the decimal system, based on the gramme, litre, and metre, which was adopted throughout the Turkish Empire in the year 1869. But though the use of the decimal system is gradually becoming more general, the old weights and measures are still used everywhere in Syria, more particularly in the villages and rural parts. The units, both of weights and measures, vary in almost every town and district, thus rendering transactions extremely confusing and difficult. Only very general indications of these variations can here be given. The tendency in many parts before the war was to use both the metric system and the weights and measures of the locality, imported foreign goods being usually sold by the former system and native produce by the latter.

Weights

The unit of weight is the *dirhem* or dram, equivalent to 3·21 grammes.

The multiples of this unit in most general use are :

1 oqiyeh	= 66½ dirhems	= 0·213 kilograms	= 0·47 lb. avoird., approx.
1 oqqah (oke)	= 400 „	= 1·284 „	= 2·8 „ „
1 rotl	= 2 oqqahs	= 2·568 „	= 5·6 „ „
1 qantār	= 44 „	= 56·496 „	= 124 „ „

But these more or less standard weights vary from place to place. The following are some of the local variations which appear to be in use :

Beirut, Damascus, Lādiqīyeh, and Haifa

1 oqīyeh	=66½ dirhems	= 0.213 kilograms
1 oqqah	=400 „	= 1.284 „
1 rotl, or batman	= 2 oqqahs	= 2.568 „
1 qantār	=100 rotls	=256.8 „

Raw silk and cocoons are sold by the oqqah of 410 dirhems, or 2.9 lb. avoird. (approx.).

Olive oil is sold by the oqqah of 450 dirhems=3.17 lb. avoird., in certain localities around Beirut.

Homs

1 oqqah (official)	=400 dirhems
1 „ (local)	=460
1 rotl, or batman	=2 local „
1 qantār	=117 rotls

Aleppo and District

1 oqīyeh	=100 dirhems
1 oqqah	=400 „
1 rotl, or batman ‘atīq	= 2 oqqahs
1 rotl jedīd	= 2½ „
1 rotl en-nīl	=780 dirhems
1 qantār ‘atīq	=200 oqqahs
1 qantār jedīd, or azīzi	=255 „

The rotl en-nīl is used only in buying and selling indigo. The qantār ‘atīq is used for calculating weights for animal transport. The qantār jedīd is used in weighing provisions.

Firewood, charcoal, country produce, vegetables, &c., are sold by the rotl or batman ‘atīq of 4 oqqahs, or approximately =11.28 lb. avoird. (Weakley).

Jerusalem and Jaffa (according to Report of Weakley)

1 oqīyeh	= 75 dirhems
1 oqqah	=400 „
1 rotl	=12 oqīyehs
1 qantār	=109 rotls
	= 2½ oqqahs
	=225 „

According to British Diplomatic and Consular Reports the

following are the weights and their approximate equivalents in use in the districts of Jerusalem and Gaza :

1 oqīyeh		=	$\frac{1}{2}$ lb. avoird. (approx.)
1 rotl		=	5·6 „ „
1 qantār	=100 rotls	=	560· „ „

In the Haurān wheat is sold by the qantār of 180 oqqahs, or 231 kilograms = about 509 lb. In Damascus it is sold by the qantār of 100 rotls or 200 oqqahs (Weakley).

Other weights sometimes used for grain in certain parts of Palestine appear to be : the *sā'* = 3,000–3,600 dirhems ; the *masheh* = 4,500 dirhems ; the *sudsiyeh* = 4,500–6,000 dirhems ; and the *tাবেহ* = 6,300–7,500 dirhems.¹

Throughout Syria, liquids (oil, wine and other) are sold by weight. The *qulleh* is a measure used only for oil = 26 oqqahs (Tripoli) and 16 oqqahs (Jerusalem and Jaffa).

Measures of Capacity

The unit of capacity is the *mudd*.

1 mudd = 4 rub'iyehs	= 18 litres = 31·6 pints (approx.)
1 keileh (Turkish kele) = 2 mudds	= 36 litres = 63·3 pints (approx.).

For ordinary purposes, a rub'iyeh may be considered as being approximately 1 gallon and a keileh as being a bushel of English measure.

The keileh is used for grain ; but in common practice it is no longer reckoned according to its volume but according to the weight it contains. It varies greatly with the locality and the kind of grain, thus :

<i>Beirut.</i>	1 keileh (wheat)	= 20–24 kilograms	
	1 „ (barley)	= 17–20 „	
<i>Tripoli.</i>	1 „ (wheat)	= 22 oqqahs	
	1 „ (barley)	= 17·5 „	
<i>Aleppo.</i>	1 „	= 40 „	
<i>Jerusalem.</i>	1 „ (wheat)	= 2 mashallehs	= 22½ oqqahs
	1 „ (barley)		= 16 „
	1 „ (lupins)		= 55 lb. (approx.)

¹ Guide-book to Central Palestine, H. Pirie Gordon, 1918.

At Aleppo, the *shumbul* is in use for measuring grain and seeds, as follows :

1 shumbul (wheat)	=70 oqqahs	= 89·74 kilograms	=178·5 lb. avoird.
1 „ (barley)	=65 „	=169·2 lb. avoird.	
1 „ (lentils)	=85 „	=239·7 „	
1 „ (oats)	=50 „	=141 „	

In certain parts the *ardabb* is used as a measure for grain = 95 oqqahs (barley), 100 oqqahs (maize), and 110 oqqahs (wheat).

The following measures of cereals &c., with their English equivalents, are given as obtaining at Gaza, by the British Consular Report of the trade of the district of Jerusalem (1913) :

1 keileh		= 1 bushel
5½ „	=10 sâ's	= 5½ „
1 „ (barley)	=16 oqqahs	=44½ lb. avoird.
1 „ (wheat)	=22 „	=61 „
1 „ (beans, peas, lupins)	=20 „	=55½ „
9 „ (barley)		= 1 quarter
6½ „ (wheat, dhura, lentils, sesame)		= 1 „
7½ „ (beans, peas, lupins)		= 1 „
50 „ (barley)		= 1 ton
30 „ (wheat, dhura, lentils, sesame)		= 1 „
40 „ (beans, peas, lupins)		= 1 „

Measures of Length

The unit is the *dhrā'*, pic, or ell, which is divided into 24 *qirāts*.

There are at least two kinds of *dhrā'* in use: (1) the *dhrā' mi'māri*, or mason's *dhrā'*, used in building and for measurements of land; (2) the *dhrā'*, used for measuring cloth, &c.

The length of both varies in different localities. Ruppin gives the length of the *dhrā' mi'māri* as equivalent to 75·8 centimetres, or about 29·84 in., and this may be taken as a fairly accurate standard. The length of the cloth *dhrā'* varies from 65–75 centimetres according to the locality.

The following local variations of length are taken from Weakley's Report and from British Consular Reports :

<i>Beirut and Homs.</i>	Dhrā' mi'māri	=75 centimetres	=29·5 inches
	„ (cloth)	=68 „	=26·7 „
<i>Damascus.</i>	„ mi'māri	=69·8 „	=27·5 „
<i>Tripoli.</i>	„ „	=75 „	=29·5 „
	„ (cloth)	=67 „	=26·3 „
<i>Aleppo.</i>	„ mi'māri	=75·7 „	=29·8 „
	„ (cloth) or <i>arshîn</i>	=70·9 „	=27·9 „
<i>Jerusalem and Jaffa.</i>	„ mi'māri	=75 „	=29·8 „
	„ (cloth)	=67 „	=26·3 „

At Aleppo, a linear measure called the *awn* = 30·65 in appears to be in use.

Measures of Area

1 square dhrā' mi'māri	=75·8 cm. × 75·8 cm. (Ruppin)
	=5,745·64 square centimetres = 0·574 square metres
1 dunam	=1,600 square dhrā' = 919·3 square metres

The dunam is the official Turkish land measure and may generally be reckoned as roundly equivalent to 919 square metres, or roughly $\frac{1}{11}$ hectare, or 0·227 acre. In measurements of land in towns, the square dhrā' is reckoned to be 5,625 square centimetres and the dunam 900 square metres.

The term *feddān*, as far as its use in Syria is concerned, is simply a current expression having no official definition as a land measure. The term is used in Syria in two senses : (a) it represents the amount of land that can be ploughed in a day with two oxen (roughly an area slightly less than a quarter of an acre), and must not be confounded with (b) the term *feddān*, as used in certain parts, representing the amount of land that can be cultivated with a pair of oxen in the course of a year (an area varying from 5–12 hectares).

The Syrian *feddān* must not be confused with the Egyptian *feddān*, which is a definite measure, approximately = 5,024·1 square yards, or rather more than an acre (4,840 square yards or 0·963 *feddān*).

CHAPTER X

JEBEL ANSARIYEH

THE territory coming under this section is marked on the north and south by clearly defined natural boundaries separating it from the Amanus and Lebanon ranges. The western boundary is the sea, and the eastern boundary is marked by the central valley of the Orontes. The highlands of J. Ansariyeh are distinguished as being the almost exclusive reserve of the Ansariyeh and Ismā'īliyah, two secret heretical sects of Islam who, like the Druses, have maintained religious and, to some degree, political independence. Although an agreeable and fertile country, it is perhaps the least known and least developed of all the western provinces of Syria. By reason of the exclusiveness of the inhabitants, and the constant pressure of Ottoman administration, the ports have been allowed to decay and the primitive highways afford only restricted communication with the hinterland. The only towns of any importance in this region are Antioch and Lādiqīyah; the former though steadily increasing, occupies only a part of its ancient limits, the latter is the chief port and the centre of tobacco culture for which its name is famous.

AREA

The limits are definitely marked on the W. by the sea; on the E. by the Orontes valley; and on the S. by the Nahr el-Kebīr (Tripoli) eastward to El-Buqei'ah, thence by the Homs chaussée. The northern limit has been given as the gorge of the Orontes but Lyde¹ definitely marks the boundary some 30 miles farther S. on the line of the road running NE. from Lādiqīyah over a pass near Bahlūliyah, and through

¹ *The Asian Mystery.*

a winding valley to Jisr esh-Shughr. The mountains S. of this line are so much the special abode of the Ansariyeh as to be called by their name, while those N. of it, although largely occupied by that people, are outside the limits of J. Ansariyeh proper. There is besides, an essential difference in the structure of the two mountain tracts. In the following description however, the whole range is included under this title. The length N. to S. is about 105 miles; the width W. to E. varies from about 23 miles to a maximum of about 57 miles between Homs and Hama. The total area is about 3,500 sq. miles, chiefly mountainous country with a comparatively small proportion of coastal plain running southwards from Lādiqiyeh.

The greatest and most important part of this territory includes the whole sanjaq of Lādiqiyeh, in the vilayet of Beirut, containing the kazas of Lādiqiyeh, Jebeleh, Marqab, and Sahyūn. The most northern part comes under the vilayet of Aleppo, and includes parts of the kazas of Antioch and Jisr esh-Shughr; while the most southern districts are in the kazas of Sāfīta and Husn el-Akrād, sanjaq of Tripoli. The great bend of the mountains which projects eastwards in the neighbourhood of Homs and Hama, forms parts of these two kazas, as well as part of the kaza of Hamidiyeh which latter also includes a narrow strip of the eastern slopes as far north as a point about 10 miles NW. of Qal'at el-Mudhīq. These three kazas are in the sanjaq of Hama, vilayet of Damascus.

PHYSICAL SURVEY

Coast and Coastal Plain

From the northern boundary at the Orontes which falls into the sea in the middle of a long line of beach, the shore merges into a small plain. This coastal strip is gradually narrowed down by the penetration of low spurs from the Anti-Cassius ridge, until it is completely interrupted by J. el-Aqra' and the spurs skirting the shore to S. of it. Lying at the south-western base of the mountain is the small bay Mīnet

el-Qasab. Beyond here, the coast opens out into a narrow cultivated tract which becomes more narrow as it swings westward to Ras el-Baseit. This is a low promontory projected by a ridge coming from SE. close to and parallel with the coast, and forming the small bay of Baseit which faces north. From Ras el-Baseit to Ras Fasōri, the coast generally is bold cliffs with a few sandy beaches, and about 3 miles from the former there is the open roadstead of 'Īsa Begli where steamers call to load chromate of iron. North-eastward of Ras Fasōri, the great valley, W. Qandil, breaks through. Ras Fasōri is a conspicuous promontory and, from it, the coast to Ras Ibn Hāni continues in bold cliffs and some sandy beaches. About 3 miles from the former is a small bay, a mile beyond which is a rocky point with a monastery between two sandy bays. This is Minet el-Kaban, a sheltered spot which can be utilized when communication by sea with Lādiqiyeh is impracticable. Ras Ibn Hāni is a narrow peninsula projecting $1\frac{1}{4}$ mile westward the shores of which have been extensively quarried. On its summit are some ancient remains and on the point is a lighthouse. On its southern side is a bay 1 mile broad with a rocky reef almost across the entrance. Ras Ziyāreh is the promontory on which lies the town of Lādiqiyeh with an ancient port now fast filling up and affording little shelter. From Ras Ziyāreh the coast consists of rocky cliffs with a sandy beach for about a mile when the plain commences, and the sandy beach continues for nearly $8\frac{1}{2}$ miles; then follows a line of low cliffs, for $9\frac{1}{2}$ miles to Ras Beledēh. Thence there is a long straight beach to Bāniyās (Bulunyās), at the northern base of a volcanic hill 930 ft. high on which stands Qal'at el-Marqab. From here to Tartūs the coast is mostly shingly beach with outlying rocks. Ras Husein, 10 miles from Marqab, is a rocky point. Tartūs is a walled coast town and about a mile N. of it is El-Mineh, a shallow basin probably an ancient port where small boats and spongers shelter; on the E. side of the basin is a large building used as a pottery. Ruwad or Arwad island lies 2 miles SSW. of Tartūs.

From Tartūs to N. el-Kebīr (Tripoli) the shingly beach continues to be bordered by shoal waters with off-lying rocky patches.

The coastal plain runs in varying width south-eastwards from near Lādiqīyeh immediately beyond which it is well watered by the N. el-Kebīr, N. Snaubar, N. el-Mudhīq, and other smaller streams. This fertile but somewhat desolate tract extends for 16 miles and ceases at Qal'at el-Marqab, being there interrupted by mountain spurs. It opens out again at Dhahr Safra, spreading to a great width behind Tartūs, and continues southwards in varying width to the base of the Lebanon range, towards which it is well watered by the N. el-Abrash, N. el-Kebīr (Tripoli), and N. el-Bārid. The whole of the plain is rich fertile land and cultivated to a considerable extent. The soil consists mostly of argillaceous and cretaceous marls. During the rainy season the surface in parts is so waterlogged as to be almost impassable.

Relief

The part of the range north of Lādiqīyeh differs structurally from that south of it, inasmuch as in the former the watershed lies on the west, parallel with the coast and the Orontes gorge, while in the case of the latter, it lies uniformly east of the range, overlooking the central Orontes.

The most prominent northern peak is J. el-Aqra', 'bald mountain', alt. 5,800 ft., the ancient Mount Cassius which latter name is sometimes given to the whole range between the Orontes gorge and J. Ansariyeh proper. It is a limestone mass rising abruptly from the sea; the lower slopes are wooded and the upper parts are naked rock. Near its middle facing the sea, it is divided by a huge cleft which falls down to the shore terminating in the small cove Mīnet el-Qasab. On the southern and eastern sides J. el-Aqra' is bounded by deep and fertile valleys and, from it, a bold limestone ridge, sometimes called Anti-Cassius, takes a north-easterly direction, running parallel with the coast and the Orontes gorge to the neigh-

bourhood of Antioch. A prominent peak on this ridge, rises to an alt. of 3,560 ft., and the craggy height of Mount Silpius, at the base of which lies Antioch, has an alt. of 1,550 ft., or 1,200 ft. above the town.

Extending southwards from the north-eastern limit of the ridge and bounded E. by the Orontes valley, is J. Quseir. The name Quseir is applied locally to the whole mountain tract as far S. as Esh-Shughr and as far W. as a line running approximately from Antioch to Esh-Shughr. It is a tame, rounded and almost treeless tableland falling eastward and is, in general, fertile and fairly well cultivated. In the part immediately S. of Antioch, it is well watered by numerous streams in green valleys bordered with oleanders and other trees.

Between J. Quseir and the coastal ridge, there is a series of ridges and deep valleys running southwards to Wādi el-Kebīr, and forming a succession of transverse ridges, deep valleys, and rocky crags in a wild and almost uninhabited country. The southward trend of the valleys draining to N. el-Kebīr is a distinct structural feature of this part of the range, which is geographically detached from the mountains to the south by the great valley of the N. el-Kebīr.

The southward continuation of the range is the part more particularly known as J. Ansariyeh. It is more uniform, and presents a rounded outline with a gradual rise from the sea and is diversified by scrub-covered lower hills and intersected by deep valleys falling westward. The main ridge runs N. and S., has an average elevation of about 3,000 ft. and overlooks the Orontes valley towards which the eastern slopes, intersected by deep gorges, fall almost precipitously. On the W. the mountains fall more in terrace formation, steep slopes and rocky ridges alternating with small plateaux and cultivated areas. They sweep in circles round the large plain of Lādiqīyeh and Tartūs throwing out spurs which at Qal'at el-Marqab, reach the sea. From here southward for some distance, the plain is interrupted and, at Dhahr Safra, the mountains commence their second great inland sweep leaving a wide plain

seaward for the whole distance to the Lebanon range. The mountains and hills are composed generally of trap, or marl and limestone, dislocated and tossed about by the obtrusion of trap dikes.

On the lower slopes E. of Lādiqīyeh there is a very conspicuous hill, carrying a double-domed *ziyāreh*, which rises above the plain. This peak was chosen by Lt. Brooke of H.M.S. *Tartarus* as an observation post in the Admiralty Coast Survey of 1858. From it extends a lofty ridge separating the district of Mahālibeh from that of Kelbīyeh.

On the main ridge are three prominent conical peaks, Nebi Yūnis (alt. 4,940 ft.) E. by N. of Lādiqīyeh; Nebi Matta, a volcanic peak, alt. 3,585 ft., W. of Qal'at el-Mudhīq; and Ja'far Teyyār¹ E. of Jebelch; each of these is surmounted by a *ziyāreh*. Lyde considers the last-mentioned to be the highest peak of the range. It is only slightly higher than the other two peaks, and is easily distinguishable by its bald summit, standing at the inmost part of the curve of the mountains which sweep round Lādiqīyeh. Running westwards from it is the deep W. en-Nāsir, a region of lonely gorges sheltering a wild and lawless people. N. of this wādi, in the neighbourhood of Qardāhah the chief village of the Kelbiyeh tribe, the country is diversified by hills and rich valleys, among which W. Beit Ahmed is well planted.

The southern extremity of the range falls, in gradual slopes broken by minor ridges shooting out in a general

¹ The position of Ja'far Teyyār as described by Lyde (*The Asian Mystery*, pp. 7-9) corresponds to that marked 'Nebi Mitta' on the W.O. Map 1915. Nebi Mitta, according to Lyde, is S. of and near Nebi Yūnus, and this identification corresponds more closely to that of Burckhardt, who describes it as 'the highest point' opposite Qal'at el-Mudhīq, and who on his map places it W. by N. of that place. Both authorities therefore agree to a position much farther N. than is shown on the W.O. map. The difference of opinion as to which of the two is the higher is not difficult to account for as their heights appear to be very much the same. The identification of Nebi Matta by Post (Q.S. 1893), who places it about 5 miles to W. of Qal'at Masyād, S. of the latitude of Hama, apparently corresponds to another Nebi 'Mitta' on the W.O. map which is placed lower down the western slopes to N. of the latitude of Tartūs.

south-westerly direction, to the great divide which separates it from the Lebanon range. The main ridge sinks southwards into the comparatively low country lying W. of Homs; at its south-eastern end it is called Merj ed-Dilb or Dhahret Hadhūr, alt. 3,800 ft., on the top of which there is fine spring pasturage and several fountains. E. of Hadhūr is a height called Dhahret Quseir with a ruined castle, which appears to be the highest point in this southern part. Its summit is a rounded barren knoll and on its western declivity is a copious fountain. In the vicinity of Sāfita, the hills are rounded and well wooded. The rock is mainly limestone with occasional patches of pudding-stone and argillaceous schist. In the valley of Nahr Ghamkeh to the NW. there is an immense quantity of chert, quartz, chalcedony, and jasper.

Standing out from near the middle of the southern slopes is the height upon which is built the crusading castle Qal'at el-Husn, or Husn el-Akrād. Like an outpost guarding the entrance to the eastern plain, the hill is nearly isolated from the main chain being connected only on its western side; a deep valley or notch towards the N. lies obliquely E. and W. cleaving the ridge almost to its base. From this valley there ascends northwards to Dhahret Hadhūr another which is well cultivated and planted with mulberry and fruit trees. Strategically this hill has been one of the most important points in Syrian history: it is the most southern elevated point of the range and the strong and extensive fort on its summit commanded the lines of communication from the coast to Homs and Hama. The fort now encloses an important village and still commands the modern chaussée and railway from Tripoli to Homs on the S. as well as the road to Hama through the pass and valley immediately N. of it.

The country falling westward to the sea is in certain parts covered with dwarf oaks and heaps of basalt boulders are frequent. Great trap chasms traverse the region from east to west through which streams find their way to the plain. To the south-west of the heights of El-Husn a high alluvial plain

falls to Nahr el-Kebîr, and towards the sea there are low hills and swells descending to the rich, well-watered and abundantly cropped maritime plain. On the E. the hill of El-Husn is bounded by W. en-Nāsir, a deep valley with a large stream, swampy and difficult in spring but dry in summer, falling into the marshy El-Buqei'ah through which flows the N. el-Kebîr.

El-Buqei'ah is a fertile shrub-covered plain situated between the two mountain ranges; it is oval in form, and about 10–12 miles E. to W. and about 6 miles N. to S. On the SE. it is bounded by the last spurs of the Lebanon to the east of which Wādi Khālid enters, carrying the upper waters of Nahr el-Kebîr. Towards the N. are the ridges of J. Ansariyeh from which the Husn ridge extends south-westwards, gradually diminishing along the whole western side of the basin. This ridge sinks very steeply on its east side but falls much more gradually towards the west running out in low ridges and waving hills to the western plain. The N. el-Kebîr passes down its south-western extremity and breaks through the western ridge by a gorge. In El-Buqei'ah itself there are several springs, but the Kebîr is the only permanent stream entering or leaving the exceedingly fertile and well cultivated plain.

To the E. overlooking the plain, are the heights of Hadîdeh stretching to a length of $6\frac{1}{2}$ miles,¹ the flanks resting on the steep spurs to the N., and on the deep valley of Nahr el-Kebîr with the steeper spurs of the Lebanon on the S. The Homs chaussée passes across the level plain towards the southern end of these heights and winds gradually up to the centre of the ridge at Hadîdeh. The crest-line between Hadîdeh and the first steep spurs of J. Ansariyeh is open and of fairly easy contour sloping gradually towards the plain, but the whole ground is thickly strewn with basaltic boulders. S. of Hadîdeh the slopes are covered with low scrub.

Eastwards towards Homs the country is comparatively easy and open. The low watershed lies much nearer to El-Buqei'ah than to the Orontes: the wādis falling westward

¹ See W.O. *Report on Syria* 1911. Pt. I, p. 110.

into the former being short and sharp, whereas towards the Orontes the fall is gradual. Robinson and other travellers are of opinion that the waters of the Orontes, if carried off from above Ribleh along the western side of the plain, might all be turned across the watershed into El-Buqei'ah; the course would be through comparatively level country.

A great trap belt lies across the southern part of the range and abuts against the northern slopes of the Lebanon. From W. to E. the belt, in some places 1,500 ft. thick, extends from about 4 miles from the coast to the Orontes valley, but not beyond it. From a point just S. of Nahr 'Akkār, its southern limit runs E. by N. to the main ridge, then eastward to near the shore of Homs lake. Its northern limit starts from about half way between N. el-Kebīr and Tartūs, and swings north-east, then northward to include Nebi Matta.¹ The latter part of this stretch runs along the western side of the main ridge only; on the eastern side of the main ridge the trap boundary extends from a point 12 to 14 miles S. of Nebi Matta, to a point about 5 miles N. of Homs.

Just S. of Shemsīyeh the main chain bends toward the SW. This bend leaves a bay between the mountain mass at that place and a similar one a few miles S. which is the northern end of a trap ridge trending S. by E. to El-Buqei'ah. This ridge bounds the upper valley of Nahr el-Kebīr to the E. Between the main ridge and this valley is a series of ridges radiating in fan shape, all capped at their northern end by trap. The ridge, opposite the southern end of the chain on which Qal'at el-Husn stands, is composed of trap on its eastern, and limestone on its western ends. At the bottom of the valleys, especially that between the Husn range and the main chain, the limestone underlies the trap, but there are occasional outcrops. The trap crosses El-Buqei'ah and abuts against the northern spurs of the Lebanon.

For description of the wādis and streams of J. Ansariyeh, see Chap. XIII, pp. 421 ff.

¹ The identification of Nebi Matta is that made by Post, who puts it about 5 miles to W. of Qal'at Masyād.

CASTLES AND ZIYĀREH'S

Castles

The whole of the range is studded with mediaeval castles often covering earlier foundations; they are conspicuous landmarks and, like the ziyārehs, give their names to the peaks and spurs on which they stand. By reason of their functions as defences against invasion from the sea or the eastern plain, as protectors of the highways, and as local strongholds, they occupy important strategic positions. They are often within signalling reach of each other. A few of the remains cover very considerable areas, and within some of them important villages and centres of local administration now find protection. The wild and lawless life of the rebellious Ansariyeh and Ismā'īliyah approximate to conditions of life associated with such strongholds. The following are the principal:

Qal'at ez-Zau, also named *El-Quseir*, alt. 1,240 ft., is one of the most northern castles and lies about 8 miles S. of Antioch. It stands on a wooded limestone peak isolated on all sides save the SW. where it is attached to and commanded by a higher mountain on which stands the cupola of Weli Sheikh 'Ali. The cliffs surrounding it fall precipitously to the bed of N. el-Bawardeh and its affluent. In shape it is an irregular polygon, and only the eastern part of the fortifications remains. A track follows along the banks of the river N. and E. from which latter side a branch track leads up to the castle.

Qal'at esh-Shughr, dominating the Orontes valley N. of Jisr esh-Shughr, stands on the crest of a spur with precipitous flanks on all sides save the S. where it is isolated from the mountain by a wide and deep fosse. It lies in the bend of N. el-Abyadh, which doubles round its northern end and flows southwards along its eastern flank. A track from Shughr el-Qadīm on the SW. follows the valleys and crosses the stream by a bridge on the NW., doubling round the N. end of the spur and following the l. bank of the stream.

Qal'at Sahyūn, alt. 1,440 ft., lies E. by N. of Lādiqīyeh on a tongue of rock forming an acute triangle jutting W. from and attached to the base of a hill by which it is dominated. It is a natural defence, being surrounded on all sides except the E. by deep ravines carrying torrents which meet at the western point of the triangle. On the E. it is isolated from the hill by a deep and wide fosse. A road coming from NW. leads into the northern valley and mounts to the fosse on the E., then doubles round the SE. angle of the castle and enters it at about the middle of the southern side. The Castle commands a wide view of the surrounding country.

Qal'at el-Mahālibeh, alt. 2,575 ft., lies E. by S. of Lādiqīyeh crowning the summit of a mountain and dominating the large village of Dibbāsh to NW. It is oval in shape measuring about 220 yds. on its long E. to W. axis. It stands near the pass over which runs the road to Qardāhah, and commands a view to Lādiqīyeh.

Qal'at Beni Isrā'il lies S.¹ of Matwar in a deep gorge extending westward to the plain, which it defends.

Qal'at es-Seijar, alt. 700 ft., is the most eastern fortress in the mountain. It lies to the NW. of Hama and crowns the crest of a narrow, rocky spur projecting northward and bounded on the E. by the deep and precipitous gorge of the Orontes, and on the N. and W. by rock precipices; on the S. the spur is isolated by a deep and wide fosse. In shape it is a narrow parallelogram measuring about 550 yds. by 50 yds. dominating the river and the plain. The remains have very nearly disappeared except on the north and south, where considerable portions still exist. The site is now occupied by a modern village.

Qal'at el-Marqab, alt. 1,150 ft., is a coast fortress south of Bāniyās, and stands on the summit of a volcanic rock close to the sea. The site commands a very extensive view, and during the time of the Crusades was an important signal station. Now there is within its walls an Ansariyeh village, pop. 1,500, which up to 1885 was the capital of the kaza.

¹ On G.S.G.S. map 1915 *Qal'at Beni Isrā'il* is shown N. of Matwar.

Qal'at Qadmūs, alt. 2,785 ft., lies SE. of Bāniyās on a steep crag dominating the large village of Qadmūs which is itself surrounded by walls with two gates. It is the residence of the chief of the Ismā'īliyah who form the majority of the inhabitants of this district.

Qal'at el-Qāf lies SW. of Qadmūs and is a large fortress, part of which is the residence of the mudir of the nahiyeh of Qadmūs.

Qal'at Masyād or *Masyāf*, alt. 1,675 ft., lies to the E. of Qadmūs on a high and almost perpendicular rock at the foot of the highest point of J. Masyād which rises precipitously on the north. It commands the wild moor in every direction and may be approached on two sides.

Qal'at Sāfita or *Burj Sāfita*, alt. 1,510 ft., lies on the first spurs of the mountain E. by S. of Tartūs. It occupies the top of a conical trap hill which has been extended into a terrace by heavy masonry walls about 40 ft. high. The hill rises about 1,000 ft. above the valleys which isolate it N. and S., while narrow and lower ridges connect with the nearest hills on the E. and W. In shape it is an elongated octagon 172 paces E. to W. and 140 paces N. to S. Under the terrace there are vast vaults and on it, near the east end, stands a large and lofty tower. The position affords a wide view in all directions and commands the pass and road from Arwad and Tartūs over the mountain to Hama. The castle was formerly a signal station in communication with Qal'at el-Husn, Qal'at el-'Oreimeh and El-Mineh (Tripoli).

Qal'at el-Husn or *Husn el-Akrād*, see p. 331.

Ziyārehs

These places of pilgrimage are found in great numbers and, on account of their prominent positions and whiteness, are conspicuous landmarks. They give their names to the peaks and spurs on which they stand. Going from N. to S.¹ the chief are :

¹ The positions given in the G.S.G.S. map 1915 do not correspond with the description here given, which is taken from Lyde, p. 170.

Nebi Yūnis, alt. 4,940 ft., one of the highest peaks in the north-eastern part of the mountains E. by N. of Lādiqīyeh.

Nebi Matta, alt. 3,585 ft., a very high peak S. of the above. The peak is volcanic and is on a branch ridge some distance W. of the main ridge. The top is covered with bracken and there are springs almost at its summit. Nearly the whole of the northern part of the range can be seen from here.

Nebi Rubīl farther S., a conspicuous cone near the village of Et-Tīneh.

El-Arba'in still farther S., another conspicuous hill.

Ja'far Teyyār, also called *El-Malik*, is said to be the highest peak in the range and lies E. of Jebeleh on or near the main ridge.

Ahmed Kirfās a spur N. of that on which Qal'at el-Marqab stands; the ziyāreh resembles a small Cairo mosque, being banded in red.

Sheikh Mahmūd el-'Ulleiqeh east of Bāniyās on Jurd el-'Ulleiqeh.

Nebi Shīt, alt. 3,500 ft., S. of Qadmūs; the upper slopes are covered with thick ferns. The ascent can be made from Qadmūs.

In the neighbourhood of Sāfita nearly every conspicuous peak is crowned by a ziyāreh.

CLIMATE

The climate of the mountains and plains is especially agreeable. On the lower mountains the temperature in the shade does not rise above 95° Fahr. though the east wind is sometimes oppressive in summer; winter is short and snow rarely falls in the plain. Ague and ophthalmia are not uncommon during summer, arising from exposure to heat and neglect of cleanliness.

East of the mountains the climate is far more unhealthy, the marshes of the Orontes giving a pallid hue to all who live near them. This locality is subject to fever and is infested by mosquitoes of large size from which, during the heat of summer, the natives seek refuge in the mountains.

NATURAL PRODUCTS

Minerals.—Asphalt and bitumen are among the undeveloped resources of the country. Prospecting licences were granted as far back as 1850 for coal and asphalt mines at Antioch and J. el-Aqra', but nothing has resulted. In the Lādiqīyeh district an extensive concession for three mines of bitumen and asphalt was granted to a British subject in 1904. These mines are too far from the coast to be profitably worked without a light railway. Three chrome mines also in the Lādiqīyeh district, all near the coast, are worked under a protecting licence. The quantities extracted were as follows: in 1904, 182 tons; 1905, 822 tons; 1906, 21 tons; 1907, 64 tons.

Woods.—The steady destruction which has gone on for ages has denuded the mountains of the greater part of their fine forests yet, compared with southern Syria, there are still considerable tracts of woodlands. The mountains above Antioch are suited to trees of every kind but the whole of J. Quseir has been almost entirely denuded. The northern part of the range near the coast, with the exception of the upper slopes and of J. el-Aqra', is clothed with fine pines and oaks with occasional walnuts. East of Lādiqīyeh there are woods of evergreen and other oaks, including the *uzr* which is used for making fires to smoke the *abu rīhah* tobacco-leaf (see p. 267). The N. ez-Zerqa and the upper reaches of N. el-Kebīr flow through wooded country, and the surrounding hills are covered with oaks and pines. On the eastern slopes of J. Ansariyeh there are forests of gall-bearing species of oak. In the neighbourhood of Ja'far Teyyār there are woods of a small kind of beech and oak, and in the districts of Sāfita and Husn el-Akrād there are wooded hills. The oleander borders the streams and the myrtle abounds in the mountains and plains throughout the whole region. The wild olive is very common in the hills E. of Lādiqīyeh. The woods of Sahyūn district are exploited by charcoal burners.

AGRICULTURE AND INDUSTRIES

Agriculture

J. Ansariyeh has been described as a barren region but it is, in fact, an extremely agreeable and fertile tract. Being lower and less rocky, it is naturally much more fertile than the Lebanon.

The whole of the coastal plain is exceedingly fertile and is well watered at its northern and southern extremities. In the lower mountains and also in the higher altitudes, there are fertile areas; one of the most fertile plains in the whole mountains is El-Buqei'ah watered by the N. el-Kebir. Except in the case of olives, cocoons, tobacco, and liquorice root, products are limited to local needs, the natives preferring this to the burden of taxation which follows upon surplus production. A great proportion of the ground is therefore uncultivated and the primitive farming methods produce only a necessary minimum from the areas under cultivation.

Grain and Bean Crops, &c.—Wheat, barley, dhura, sesame, lentils, chickpeas, beans, vegetables and fruit of all kinds are raised in small quantities chiefly on the coastal plain. The wheat of Lādiqiyeh does not keep well, being liable to attack by weevil. The land is prepared for wheat and barley in October and November and harvest is about the end of May. The ground then lies fallow till the next winter, when it is ploughed and prepared for summer crops which are sown in spring and reaped in autumn; these consist of dhura, cotton, sesame, lentils, chickpeas, and castor oil. Tracts of moist ground are chosen for melons, cucumbers, tomatoes, egg-plant, &c.

Sericulture.—Mulberry trees are extensively cultivated in the Antioch valley. The silk industry of the Antioch district increased by about 50 per cent. between 1900 and 1910. The eggs are chiefly imported from France and 377,000 kg. were bought for Antioch in 1908–9, to which must be added 306,000 kg. locally produced (Weakley). The greater part of these is used for the extensive areas outside the Ansariyeh region, in the neighbourhood of Suweidiyeh and elsewhere in the

Antioch kaza. The weight of green cocoons produced in the Antioch kaza in 1908-9, was 1,427,208 lb., and of this amount 1,343,290 lb. were dried and exported via Alexandretta. Only defective cocoons remain in the country, and silk from these is spun and woven at Antioch. The Lādiqīyeh district produces large quantities of cocoons which are dried and exported, no local weaving being carried on. The produce of the southern and south-eastern areas finds nearer markets in Tripoli and Homs where silk is extensively manufactured.

Olives.—Olive trees are found everywhere throughout the mountains, particularly in J. Quseir, and a certain increase in the Antioch and Lādiqīyeh districts is noticeable; excessive taxation has, however, seriously burdened an otherwise profitable industry. Wild olive trees grow in abundance on the slopes near Lādiqīyeh; young trees are uprooted to stock new groves, the transplanted tree becoming fruit-bearing 5 years after grafting.

Tobacco.—The region is noted for tobacco which is grown throughout the mountains. The hill country behind Lādiqīyeh is, however, the chief area where it is extensively cultivated. The best-known brand is *abu rīhah*, a black leaf grown especially in the Sahyūn and Jebelch districts. This leaf is almost entirely exported to the United Kingdom, the average yearly production during 1905-9 being nearly 900 tons. Another quality which is sold to the Ottoman Régie is the brand *shakk el-bent*, the average yearly yield of which was 250 tons for the years 1905-9. In both kinds, there was a very large increase during the years 1908-9. (See also p. 266 f.)

Liquorice root.—The plant is found near marshes and on river banks: it abounds in the valley and plain of Antioch and, in the Ansariyeh region, it has been found in J. Quseir. It grows wild and the roots are dug up during winter. The plant in its natural state is said to be much depleted and cultivation will be required in order to meet the needs of the industry.

Fruit trees of every description flourish throughout, but

especially around Lādiqīyeh; oranges and lemons though not extensively cultivated, are found on the plains. The vines in the neighbourhood of Lādiqīyeh produce excellent wine.

Live-stock.—In those parts of the mountains within the kazas of Antioch and Jisr esh-Shughr, the sanjaq of Lādiqīyeh, and the kazas of Sāfita, and Husn el-Akrād, the live-stock appears to be fairly evenly distributed. The following figures are roughly computed from Cuinet's estimates (1896): Cattle 9,000, horses 4,000, asses and mules 5,000, sheep 55,000, goats 300,000, camels 500. The small number of pack animals is an indication of the extreme industrial stagnation throughout these regions. In addition to the above there is also the area on the north-eastern slopes of the mountains in the kaza of Hamidīyeh where the natives graze their flocks and herds in the great valley of the Orontes. There is, besides, the extensive mountain tract enclosed within the great eastern bend of the Orontes near Qal'at es-Seijar, southwards to El-Buqeī'ah, which belongs to the kazas of Hamidīyeh, Hama, and Homs. No reliable statistics are obtainable upon which an estimate of the stock in these latter regions can be based, although it is certain that, at least in the vicinity of the Orontes valley, the numbers are very considerable.

Excellent pasturage is found in various areas, particularly in the districts of Sahyūn and Sāfita, Husn el-Akrād, and in the Orontes valley. During spring the mountains are richly covered with verdure.

Poultry raising appears to be extensive. There is a very large export trade in eggs which are mostly packed whole, only the yolks and albumen of very stale and broken eggs being separately packed. The number annually exported from Lādiqīyeh amounts to 12,000,000 out of a total for all the Syrian ports of 22,500,000.

4

Industries

Olive Oil.—The berries are gathered about the end of October and are crushed in the primitive presses common

to the country. There is much waste in the process and it is estimated that only about 50 per cent. of the average crop can be dealt with on account of the lack of sufficient presses. Processes of refining are unknown and fermentation sets in if the oil is kept too long. Edible oil is not largely produced in this region, the yield being almost entirely used for soap making.

Taking the average of two years' production (Weakley) the quantities are as under :

Tripoli sanjaq, part of which is in J. Ansariyeh	.	.	.	2,000,000 oqqahs
Antioch and Jisr esh-Shughr	"	"	"	2,000,000 "
Lādiqiyeh, Bāniyās, and district	.	.	.	700,000 "
Total	.	.	.	4,700,000 "

Soap manufacture.—There are 14 factories in Antioch and 4 in Lādiqiyeh for the manufacture of soap from olive oil ; most of them are small native factories producing as follows :

Antioch	.	.	.	1,220,000 oqqahs
Lādiqiyeh	.	.	.	300,000 "

The soap is hard and lathers badly but is considered to be more economical on that account, and is much in demand. The industry has recently much increased owing to the greater demand in Asia Minor (Weakley).

INHABITANTS

The population of J. Ansariyeh is very mixed. Turkomans, Arabs, Kurds, Ismā'īliyah and Christians intermingling with the Ansariyeh, who are much the most numerous and important. No definite statistics are available ; the numbers given below are the estimates in round numbers of Cuinet, 1896–1901 :

Ansariyeh	.	.	.	.	.	110,000
Moslems	.	.	.	.	.	90,000
Christians	.	.	.	.	.	45,000
Ismā'īliyah	.	.	.	.	.	9,000
Druses	.	.	.	.	.	3,000
Jews	.	.	.	.	.	1,000
Total	.	.	.	.	.	258,000

The Ansariyeh inhabit chiefly the sanjaq of Lādiqīyeh and the kazas of Sāfīta, Husn el-Akrād, Antioch, and Jisr esh-Shughr; very few are found east of Masyād and Qal'at el-Husn. Moslems and Christians are most numerous along the coast and at Antioch, and are scattered throughout the mountains.

The Ismā'īliyeh are found chiefly in the vicinity of Masyād and Qadmūs. Druses are found in the south-eastern part of the mountain in the vicinity of Hamidīyeh and Hama.

Previous to 1914 emmigration to N. and S. America had considerably lowered the population of the mountain.

See also Chap. V, pp. 215 ff.

CHAPTER XI

COUNTRY EAST OF JEBEL ANSARĪYEH

THIS territory includes the Orontes valley and a parallel belt of broken mountains and plains bordering the great Syrian desert. On the west, east, and south, it is contained within definite natural boundaries, but on the north the limit is arbitrarily drawn to conform to the southern limit of the section under 'North Syria' (see Handbook of Asia Minor, Vol. IV, part 2).

The eastern plateau is easily traversed, and its geographical importance is indicated in the great trunk routes by which it is intersected, linking up the rich inland cities of Aleppo, Hama, Homs, and Damascus. These cities, especially Aleppo, are the chief trade centres between the Mediterranean and Mesopotamia, along a line of about 190 miles. At the same time they lie in the direct line of communication with the great Islamic centre at Mecca. Roads and railways now link them up, affording access to the ports of Alexandretta, Tripoli, Beirut, Haifa and Jaffa; future developments might with advantage add communications with other ports, notably those of Lādiqiyeh, Sidon, and Tyre.

The region generally is poorly developed, sparsely populated, and, except in the central depression, suffers from lack of water. Its wealth lies almost entirely in and around the cities which are centres of flourishing industries where most of the surplus produce of the eastern nomads is bartered.

AREA

The region is bounded on the north by a line Jisr el-Hadīd-Hārim-Aleppo-Meskeneh; on the south by the northern bases of the Anti-Lebanon system shooting north-eastward into the

desert ; on the west by J. Ansariyeh ; and on the east by the desert. It measures approximately 120 miles from N. to S., and the total area is about 4,000 square miles.

The administrative areas taken from north to south include parts of the kazas of Hārim, Aleppo, Bāb-Jebbūl (El-Bāb), and Jisr esh-Shughr, and the whole of the kazas of Idlib and Ma'aret en-Nu'mān, all of which are in the sanjaq and vilayet of Aleppo. To south of these the territory includes the greater part of the kazas of Hamidiyeh, Hama, Homs, and Selemiyeh in the sanjaq of Hama, vilayet of Damascus.

PHYSICAL SURVEY

Relief

The plateau is in general bare, treeless, and waterless, becoming more and more arid as it approaches the desert. Except in the districts of Aleppo, Hama, and Homs, where the population and cultivation are fairly large, it is sparsely inhabited and only partially cultivated.

Lying over against the Orontes valley and rising from the plateau are several detached mountain groups of irregular structure having no uniform watershed. They form a continuation of the broken highlands which run south from the Kurd Dagħ plateau in North Syria, lining the eastern verge of the great central depression. The most northern of these are the twin ridges J. el-'Ala and J. Bārishēh, merging eastwards into J. Halaqah. Standing out from the southern base of the former is the small isolated J. Wustāni surrounded by plains and marshes. Farther south is J. Rīha and still farther south is the elevated plateau, 'Alāla, lying to east of Hama. Towards Homs, only low hills and undulations mark the border of the plateau which continues southwards until it is interrupted by the Anti-Lebanon chains and their eastern spurs.

Rolling country accentuated by occasional low hills marking the beginnings of the higher northern plateau of Kurd Dagħ, stretches eastward from J. Halaqah to

the Kuwaik Su just south of Aleppo, beyond which the low ridge of J. el-Hāss runs south-eastward into the desert. Standing out south-east of this ridge, is J. Shebīt, a small isolated hill rising from the desert plain. Enclosed within these mountain groups is the great cultivable plain, its fertility diminishing as it merges into the desert which spreads eastward in arid expanses of plains and mountains to the Euphrates valley. Throughout the whole region the only wooded areas consist of unimportant groups of trees. In the district of Hama there are poplar plantations along the banks of the Orontes.

The parallel ridges of *J. el-'Ala*, and *J. Bārīsheh*, (E.), run north and south and are partly separated by Wādi Hattān. The rocky and bare formation is limestone with steep and rugged sides, from which the soil has been washed by winter rains and torrents through deep chasms to the valleys and marshes below; only small pockets of arable land here and there remain. The whole group covering an area of about 12 by 10 miles, rises from the plain on all sides except the NE. where the foothills merge into J. Halaqah. Taken as a whole, these mountains are higher and far more rugged than J. Rīha, there are fewer villages, and the cultivated areas are more scanty; being almost waterless and barren, the population is small and poor. Numerous ruins of extensive ancient cities and settlements with many cisterns and innumerable oil and wine presses testify to a prosperity and productiveness which has long since disappeared.

The elongated ridge of J. el-'Ala extends due N. and S. for a distance of 10 miles, rising to an alt. of 1,885 ft. at Ben Ābil on the northern verge, and having its highest peak, alt. 2,385 ft., towards the S. Unlike the other approaches which are steep and difficult, that from El-'Amq (Antioch plain) is fairly easy, being difficult only because of the rifts and chasms. The dividing valley, W. Hattān, falls towards the N., and at its head is closed by highlands which unite the twin ridges. Its rich red soil washed from the surrounding slopes is extremely fertile and produces the greater part

of the crops in the locality. During the rainy season the whole valley becomes a shallow lake.

The main ridge of J. Bārīsheh terminates on the N. in the high peak of Qubbet Bābūteh, and on the S. by a steep rock wall falling to lower heights which continue southwards until they drop to the level plain. This southern part is less rugged and has more soil than the other parts. There are large olive groves on the northern slopes which fall steeply to a deep valley running to the Antioch plain; this valley separates the mountain from the low hills to the N. The peak Qubbet Bābūteh commands a view over a great part of Syria in every direction. Its north-eastern side falling to the low foothills which touch the Sermada plain, are steep, rugged, and in places, almost impassable. In the immediate vicinity of the plain the watershed inclines towards the plain, and much soil is carried from the slopes into that fertile basin. From the north-eastern foothills, a low ridge, J. Halaqah, sweeps eastwards and, describing a circle, completely surrounds the plain. The great cone of J. Sheikh Barakāt, alt. 2,970 ft., rises at the north-eastern point of the circle and is structurally a part of this ridge which, with the surrounding country, it completely dominates.

The *Sermada plain* is an irregular oval in shape about 10 miles long on its NE.—SW. axis, and 3–4 miles on its minor axis. It is an extremely fertile tract of rich red soil sheltered in the heart of the mountains, containing several villages and yielding supplies for a considerable population.

Jebel Rīha.—This group is also called J. ez-Zāwiyeh, or J. el-Arba'in, 'mount of the forty' (martyrs). It rises from the plain to the S. of J. Bārīsheh having the small isolated ridge J. Wustāni, 'middle mountain', between, from which it is separated by the marshy plain of Er-Rūj, a fertile tract about 3 miles wide and many miles long. The area of the massif is about 14–16 sqr. miles; from it, low spurs shoot out southward towards Qal'at el-Mudhīq overlooking the Orontes valley. Although some of the peaks are higher, the general elevation is lower than that of the Bārīsheh group, and the isolated position

makes it appear to be higher than it is. The most prominent peak is Tell Nebi Ayyūb, alt. 2,955 ft., standing on the western side of the mountain; Tell Sheikh Tūmān, alt. 2,790 ft., stands farther S.; and Khirbet Hāss, alt. 2,104 ft., is some distance to SE.

The formation of J. Rīha is limestone with a rocky semi-desert surface not so rugged or precipitous and less barren than the northern group of 'Ala and Bārisheh. There are several broad and level arable tracts in the hills where olive trees, vines, and sparse crops of grain are raised, and there are olive plantations wherever the soil will bear. The district on the NW. between Tell Nebi Ayyūb and the village of Rīha, is more fertile than the other parts.

Numerous ruins of ancient cities with oil and wine presses, now entirely unoccupied, are scattered about. The only important villages in the locality occupy prominent heights: these are Rīha, alt. 1,971 ft., on the northern verge; El-Bāra, alt. 2,138 ft., in the centre; and Hāss, alt. 1,995 ft., on the S.

'Alāla.—The name given to this mountain distinguishes it from J. el-'Ala of the northern group. It lies immediately E. of Hama on a NW. and SE. axis, and is bounded by well defined limits. From Selemīyeh at its SE. angle, it runs W. then NW., overlooking the Orontes. Its eastern slopes rise from the marshy plain; on the N. it rises very gradually; on all the other sides it is precipitous. The top is a rolling plateau which maintains similar physical characteristics throughout, and varies in altitude from 1,300 ft. on the N. and E., to 1,600 ft. on the SW. In this latter part the wādīs are more deep and precipitous than on the N., where they become broad and shallow. The plateau is of basalt overlying a stratum of crumbly calcareous limestone. Where the basalt soil is deep the surface is loose and treacherous, difficult to traverse in summer and impassable in winter; where the limestone is closer to the surface, as happens sometimes on the crests, the ground is firm but of little value for cultivation. The surface generally is very fertile and is dotted with small villages which occupy ancient sites and,

like the other hills in this region, it is strewn with extensive remains of numerous ancient cities. Vegetation is scanty consisting chiefly of scattered patches of grass and low scrub. Water is scarce, the supply being mostly from cisterns. 'Alāla marks the southern limit of a great basalt region which extends northward for 45 miles to J. el-Hāss, the Aleppo-Hama chaussée marking quite accurately the division between this basaltic country and the limestone country which lies west of it.

Jebel el-Hāss is a long and low basaltic ridge lying NW. and SE., the rocky and well-watered slopes and valleys on its northern side being cultivated. At the foot of the range lies the salt lake Es-Sabkheh.

The Plateau.

This elevated tract lies at a mean alt. of about 1,000 ft. with a gradual slope eastward. The surface is undulating and intersected by shallow wādis with occasional high swells and hillocks ; it is practically treeless and waterless. West of the Damascus-Aleppo chaussée, the formation is limestone ; east of it, the basalt belt commences and extends approximately to a line from Aleppo to Selemiyeh where it gives way again to limestone. The arable belt from the eastern verge of the central depression stretches between and around the isolated mountain groups finally merging into the desert. The southern part of the plateau extends from Ribleh, where the Orontes commences a western bend, and includes the wide and level plain of Homs, north of which it narrows down and then extends eastwards to Selemiyeh. North of Selemiyeh it follows the eastern verge of the basaltic belt for some distance and then begins to widen eastward striking through the neighbourhood of Anderīn to the Euphrates valley near Raqqah, and so forming the northern borders of the desert. Conflicting reports as to the eastern and northern limits of the cultivable part of the plateau suggest that large tongues of desert or semi-desert country penetrate within the limits given above, for long stretches of the railway

line between Aleppo and Hama are said to lie in desert country.

Large areas of the plateau are exceedingly fertile and well cultivated, chiefly in the Homs and Hama districts, and also near Ma'aret en-Nu'mān, Idlib, and Selemīyeh. Tracts of great fertility are also found around the many marshes which lie at the mountain bases and in the open plain towards the desert. Studded all over the plateau, are artificial mounds, often of great size, on some of which there are modern villages; the villages are grouped around the bases of other mounds. A considerable number of the mounds show no signs of occupation either ancient or modern.

The Orontes Valley.

For the description of the R. Orontes, see Chap. XIII, pp. 397 ff.

CLIMATE AND HYGIENE

The temperature of the plain is subject to extremes of heat and to bitter cold winds. During summer it is not uncommon to have a temperature of 95° to 100° Fahr., and in winter occasional blizzards sweep over the whole plain. As a rule however, the summer heat is not excessive, spring and autumn are mild, and winter is not cold except at high altitudes. The average rainfall at Damascus is said not to exceed 12 in., but the localities of Homs and Hama enjoy a heavier rainfall on account of their being more open to the heavily charged clouds crossing from the west. The dew-fall is heavy in some parts; in the plain of Idlib it provides sufficient moisture for raising a considerable cotton crop. The rainy winds come from SW. Siroccos prevail mostly in early spring and are often followed by refreshing rains; they are most intolerable when they occur in midsummer.

The marshy valley of the Orontes is very hot and unhealthy, particularly the section El-Ghāb where a pallid hue is given to all who live near. Fever is here prevalent, and this part is infested by mosquitoes of unusual size and flies which

viciously attack man and beast ; in summer they force the inhabitants to the higher slopes. The country along the heights to the east of El-Ghāb is very salubrious. In the plain fever is prevalent wherever marshes occur, but the sea and mountains on the west and the desert on the east contribute to the maintenance of a purity of air which makes the region healthy in general.

AGRICULTURE AND INDUSTRIES

Agriculture

Farming is conducted entirely in primitive fashion, modern implements and methods being unknown. The indolence of the natives, the lack of security and transport and of initiative on the part of the Government and large land-owners are reflected in the vast areas of uncultivated arable land to be seen everywhere. The irrigation possibilities of the Orontes and Homs lake are untapped and crops depend entirely upon rainfall. Droughts sometimes have disastrous effect and much destruction is frequently caused by locusts from the desert. The greater part of the population of Homs and Hama are engaged in agriculture, and the latter town is surrounded by a wide circle of prosperous villages.

The best-cropped lands are those in the Hama sanjaq and the two adjoining kazas of Ma'aret en-Nu'mān and Idlib ; the first-mentioned is the most productive of the whole region.¹

It is not possible to coordinate the following estimates as the areas to which they refer are not clearly defined.

Grain and bean crops.—The average annual produce of the sanjaq of Hama is roughly valued as follows (Cuinet 1896) :

Cereals	.	.	.	.	.	.	.	£800,000
Beans and peas	.	.	.	.	.	.	.	400,000
Aniseed	.	.	.	.	.	.	.	103,000
Sesame	.	.	.	.	.	.	.	350,000
Total	.	.	.	.	.	.	.	£1,653,000

In 1909 the districts of Homs and Hama were reckoned to give an annual yield of £300,000 worth of barley, £100,000

¹ The kaza of Aleppo is not included in this section.

of wheat, £140,000 of wool, and £50,000 of butter (German consular report).

The production of all cereals from the districts of Homs and Hama does not fall short of 2,500,000 bushels in a normal year, although only a small part of the arable land is cultivated. These districts have water near at hand in the Orontes and Homs lake (see p. 398), and with a proper irrigation system, great tracts now lying fallow could be cultivated (Weakley).

Except in the neighbourhood of Ma'aret en-Nu'mān and Idlib which are thickly studded with villages, and in the plain of Sermada, the country in the north is poorly cultivated. South of a line Aleppo-Meskeneh, where the arable land stretches towards the desert, the country supports poor crops of grain and good spring grazing. Between Raqqah and Serīyeh, the saltiness of the soil prevents cultivation. The country between Serīyeh and Anderīn, which formerly supported a fairly dense population, has been out of cultivation for centuries. In the neighbourhood of Selemīyeh, the country along the stream which flows from Barreh to the Orontes is fertile and partially cultivated.

Cotton is extensively grown in the district of Idlib and Dāna. The former ranks next to Adana (Cilicia) in importance as a cotton-growing centre. The land is not irrigated, the necessary moisture being mainly supplied by heavy dews (see p. 350). The country about Homs and Hama is admirably suited to cotton cultivation. Where experiments have been made, no doubt remains as to its suitability and there are many thousands of acres available within easy reach of the Orontes and Homs lake which could easily be adapted to irrigation.

Tobacco. Throughout the whole region tobacco is generally grown, but only in small quantities.

Olives. The chief olive-growing districts are those of Idlib and Hārim; elsewhere this industry is not extensive. In these districts the total annual production amounts to nearly 3,200 tons.

Live-stock.—Stock-raising here as elsewhere in Syria is an

important industry. Large numbers are raised on the fine pasturage of the Orontes valley of El-Ghāb, and there the marshy land is peculiarly suitable for rearing large herds of buffaloes. The Bedouin in the eastern desert and Euphrates valley are extensive stock-raisers, and they penetrate the adjoining regions during the time of spring pasture. Spring pasture is plentiful in the plains and in the northern areas S. of Aleppo and Meskeneh. The district of Raqqah is one of the finest stock-raising districts. In the neighbourhood of Selemīyeh there is fine pasturage, chiefly along the stream which flows from Barreh to the Orontes, and much stock is raised. In the country between Serīyeh and Anderīn there is good pasturage which is much frequented by the Bedouin.

The following round figures give Cuinet's estimates for the sanjaq of Hama: cattle 12,000, buffaloes 8,000, horses 12,000, asses and mules 28,000, camels 2,700, sheep and goats 199,000. Poultry is raised universally and bee-keeping is generally prevalent. There is no information upon which an estimate can be based of the considerable amount of live-stock raised in the northern districts under the sanjaq of Aleppo.

Wool. Aleppo, Homs, and Hama are the chief centres of the wool trade and nearly all the produce from both sides of the Euphrates is sold in these markets. With the approach of spring, the nomads move to summer quarters in the N., and during that period do business in the towns, bringing with them large quantities of wool. The amount of greasy wool purchased annually at Homs and Hama is estimated at 1,797,700 lbs. and 2,538,000 lbs. respectively (Weakley).

Semen. This is a kind of native butter brought by the nomads to Aleppo and Hama which are the recognized centres of the trade. It is packed in skins and sold in these towns during April, May, and June. The quality brought during this season is known as *semen hadīdī* and the total amount sold in normal years varies from 570 to 900 tons; after a season of good pasturage the yield is as much as 1,700 to 2,000 tons. About 40 to 45 per cent. of this amount is disposed of in Hama, the value of which in a normal year

is about £40,000. About £10,000 worth is also brought to Homs, most of which is sent to the district of Damascus. Of the total amount brought to Aleppo and Hama, about 20 per cent. remains in the country, 50 per cent. goes to Europe and 30 per cent. goes to Smyrna and Constantinople. An inferior quality called *semen gharib* is brought in petroleum tins chiefly to Aleppo during October, November, and December. It is very much adulterated and the whole of it is sent to Egypt (Weakley). Besides these, a small quantity of buffalo butter is brought from the Raqqah district and sent to Egypt. (See also p. 274.)

Industries

Weaving.—The textile products of the towns of Homs and Hama are famed throughout Turkish territory. There has been an appreciable lowering of production within recent years caused by the introduction of cheap European imitations. Homs ranks with Aleppo as the largest manufacturing centre. The cloths of Homs are dearer and finer than those of Aleppo, and are much sought after. Hama produces only a comparatively small amount of cotton goods. The looms, of primitive make, are usually set up in private houses, but there are also a great many in small *khāns* or *kaiser-liks*. In Homs there are 10,000 looms for cotton, cotton and silk, and silk stuffs; in Hama there are only 1,000 looms used entirely for cotton stuffs. These together form over one-third of the total loom power of the whole of Syria (Weakley). It is estimated that in Homs from £200,000 to £300,000 worth of cloths are manufactured and sold every year, from 40 to 70 per cent. of the total being taken by Egypt. (See also pp. 284ff.)

Dyes and Dyeing.—There are 22 dye-houses at Homs, 10 at Hama, 3 at Idlib, and 2 at Hārim (1910). Dye-houses vary in size from 5 to 70 troughs (Weakley). (See also p. 287.)

Olive Oil.—There are three factories for olive-oil soap in Idlib and one in Riha, and the soap produced from the district of Idlib in a normal year amounts to about 450 tons (Weakley).

Alkali.—Along the shores of the salt lake of Es-Sabkheh (Jebbūl) the *qili* plant is found from which the inhabitants obtain alkali by burning, for use in the manufacture of soap. This plant is also found at Tadmor (Palmyra).

Salt.—In the Sabkheh, the only one of the northern group of lakes which is exploited (see p. 95), there is a vast deposit of pure salt. Although only partially developed the yield is sufficient for the demands of the greater part of Syria. In spite of the military guard a large contraband trade is carried on by the Bedouin. The chief salt stores are at Jebbūl on the east side of the lake.

INHABITANTS

Reliable estimates of the sedentary population are not available. The following approximate figures are those given in Cuinet's estimates of 1892 and 1896. The numbers do not include the population of that part which comes within the kaza of Aleppo.

Moslems	.	.	.	.	.	.	350,000
Christians	.	.	.	.	.	.	90,000
Druses	.	.	.	.	.	.	30,000
Total	.	.	.	.	.	.	470,000

In addition to the above there is a small number of Jews, and in the western districts there are a few Ansariyeh. The number of Bedouin cannot be estimated as their occupation of this region is mostly confined to the season of spring pastures. Over two-thirds of the Moslems, nearly the whole of the Christians, and the whole of the Druses, are found in the region west of the line Aleppo-Selemiyeh. In the kazas of Hama and Homs alone there are 145,000 Moslems and 60,000 Christians. The wide circle of prosperous villages surrounding these two cities are inhabited by Arabs, Turkomans, and Circassians. Recent emigration to America has, however, lowered the population in these districts. In the kaza of Selemiyeh there are 17,000 Druses, and the remainder of the sect in this region are found chiefly in the kazas of Hamidiyeh and

Hama, a good many inhabiting Jebel Rīha and Jebel Bārīsheh.

Many Turkomans with their stock periodically occupy El-Ghāb. The fellahin who cultivate this valley plain usually live on the heights, and when their villages are distant they encamp during the seasons of cultivation and harvest. There are some Druse villages on and south of J. Rīha and also on J. el-‘Ala. A considerable number of Circassian villages are found between Jisr el-Hadīd and Aleppo. Between Ma‘aret en-Nu‘mān and Aleppo there are a number of Ismā‘īlīyeh villages.

CHAPTER XII

LEBANON, ANTI-LEBANON, AND DAMASCUS PLAIN

ALTHOUGH geographically quite distinct, these regions are interdependent. The separate ranges of Lebanon and Anti-Lebanon have common ground in the great central depression which divides them and drains their flanks. To them this fertile plain is of vital necessity, providing as it does tracts of arable and pasture land the scarcity of which is a serious want in the adjoining mountains. Again, the Damascus plain is linked to Anti-Lebanon by the Barada, without whose waters the city and its gardens could not exist.

The Lebanon range, Jebel Libnān or Jebel el-Gharbi, 'western mountain', is clearly defined by natural boundaries on all sides. Essentially a mountain tract having only detached strips of maritime plain, it is the highest, most rugged and picturesque, best watered and best developed region in the whole of Syria.

Its fertility is assured by the innumerable springs which burst from the western face of the mountain, and its wealth lies chiefly in mulberry groves and vineyards. In Beirut, it possesses the first port of Syria and one of the first in the Mediterranean, while the port of Tripoli is steadily gaining in importance with the increased facilities of inland communication. In the future development of these two ports there seems little doubt that the great mountain barrier must eventually become a serious menace to the present supremacy of Beirut. There are also several small harbours, now silted up and little used, awaiting a revival of their ancient service, notably the ports of Saida (Sidon) and Sūr (Tyre), which form natural stations for traffic between Baghdad and the Mediterranean via Damascus. The nature of the country

has made railway communication a problem of too many difficulties for quick solution, and in this respect the mountain is almost entirely undeveloped. There is no province in Syria, however, where systematic road communication has been so fully provided.

The Lebanese have long been considered superior among the peoples of Syria, and a constant process of emigration and subsequent return to the industries of their native mountain have established a condition of comparative affluence and enlightenment here which is at once an asset to the province and a menace to Ottoman rule. By reason of its fertility, its unrivalled scenery and salubrious climate, Lebanon is one of the most agreeable regions in the world and has become the most popular health resort of Egypt and the Levant.

Anti-Lebanon in its southern half, although less abundantly watered, presents physical characteristics in many ways similar to Lebanon. It is, however, thinly populated and its present comparatively unfavourable condition bears striking testimony to the advantages of the measure of independence which Lebanon enjoys. In the north it is waterless and barren.

The Damascus plain has always been the garden of Syria. It is in fact the only spot in the country where the productivity of the past has been in any way maintained, a condition made possible by the easily adaptable irrigation system of the Barada. Damascus, lying on the NW. verge of the plain, is, next to Aleppo, the greatest city between Mesopotamia and the sea and, being a centre of communication, is the chief place of assembly for the pilgrimage to Mecca.

LEBANON

Area

The Lebanon range is separated from J. Ansariyeh on the N. by the Nahr el-Kebîr; it is bounded on the S. by the Nahr Qāsimiyeh (Lītāni); on the W. by the sea; and on the E. by the great central depression in which are the Lītāni

and the Orontes rivers. The length from N. to S. is about 105 miles ; the width varies from about 16 miles on the southern extremity, to about 35 miles opposite Tripoli. The total area is about 3,000 sq. miles.

The province of Lebanon is a *mutesarrifliq*, with a Christian governor holding the title of *mushīr* and having the powers of a vali. It covers only part of the Lebanon range, other parts, on the north and the south, being included in the vilayet of Beirut. On the N., the kazas of 'Akkār and Tripoli and, on the S., the kaza of Saida, are within the geographical limits of the range. The eastern boundary of the province runs roughly along the main ridge as far as Zahleh where it dips down to include that town ; farther north it dips again to include the village of Shemustar. Thence it again follows the main ridge, and, after dropping to the lower plateau at 'Ain 'Ata, breaks north-westward over the ridge towards Tripoli. On the northern side, the boundary projects to the NE. so as to include J. Tarabul as far as the N. el-Bārid, but excluding the town of Tripoli and a strip of the coastal plain adjoining. The eastern slopes of the Lebanon range come almost entirely under the adjoining vilayet of Damascus ; in the N. a large part of the western slopes come under the vilayet of Beirut. Included in the province, also, is the *nahiyeh* of Hermil, an isolated strip of territory extending E. to the Orontes, from J. 'Akkār.¹ Enclaved by the western border of the province is the isolated kaza of Beirut comprising the city and its environs. The town of Beirut is the administrative centre of the vilayet of that name.

The *mutesarrifliq* is divided into the seven kazas of Shūf, Meten, Kesrawān, Batrūn, Jezzīn, Zahleh and Kūrah ; and one *mudiriyyeh*, Deir el-Qamr. There are about 930 towns, villages, and hamlets within the administrative area.

¹ The W.O. Map 1916 and Oppenheim's map show this district as if extending eastward from Merj Ahīn at the upper base of the main ridge and the Orontes ; but in the map 'Province du Liban' by Huber, the district of Hermil includes only a small strip of the plain and foot-hills to W. of the Orontes.

Physical Features

Coast and coastal plain.—From the Nahr el-Kebîr southwards the coast is shingly beach merging into the wide, fertile, well-watered and cultivated plain which spreads from behind Tartûs as far as Qal'at Hakmûn where the foot-hills approach nearer to the sea, and the plain becomes narrower. Ras el-Lados is a rocky bluff 130 ft. high, the termination of a spur from J. Tarabul. The narrow and richly cultivated plain continues towards Tripoli, terminating at the low point of El-Mîneh and intersected by N. Qadîsha. Between the river and the ras is a line of square towers prominent among which is Burj es-Seba'. From El-Mîneh, the coast for $2\frac{3}{4}$ miles is mostly sandy beach partly bordered by rocks; for $1\frac{1}{2}$ miles farther it becomes rocky and rises to alt. 750 ft. at Mâr Ya'qûb. The plain is very fertile and bears, besides cereals, large groves of olive, orange and lemon-trees, as far south as Qalamûn. It is interrupted by Ras Shaq'ah, alt. 620 ft., a mountain spur which projects far into the sea and, like Carmel, terminates in a lofty abrupt head. The spur is chalky marl, very white and easily washed away, and the road across it winds over a treacherous surface amidst curiously-shaped cones and high precipices. On the promontory there is a castle, on a perpendicular rock, reached by rock-cut steps.

The plain is intersected by several small streams in deep channels, so narrow that in places it is possible to step from bank to bank. In winter these streams are troublesome and even dangerous to cross. The soft and easily worn rock protrudes through the scanty soil, and little of the plain is under cultivation. Between Ras en-Natûr and Ras Shaq'ah there is the semicircular bay of El-Heri, the northern part of which, near the village of Anfeh, is rocky; opposite here there is a copious submarine spring. The coast, as it approaches Ras Selâta, is bounded by rocky ledges; as far as Ma'âmeltein the aspect is barren, there being rocky capes and small sandy bays formed by rugged spurs projecting from the mountains. Within this stretch are the small ancient ports of Batrûn and Jubeil.

Between Jubeil and Ras Ma'āmeltein flows N. Ibrāhīm, north of which the shore and adjacent fields are covered with black volcanic gravel, probably from a submarine trap-dyke as there is no trap in the neighbouring hills.

Between Ras Ma'āmeltein and Ras et-Teir lies the bay of Jūneh, including a town of the same name which is the port of northern Lebanon; the shore is low and shingly. On the hills above the town there are large mulberry plantations, and luxuriant vegetation covers the rich soil down to the sea. The cape, at the base of which Ma'āmeltein lies, projects N. of Jūneh Bay, and is of highly stratified argillaceous marl rising abruptly from the sea. A mountain spur reaches nearly to the north-western shore of the bay; its sides are clothed with dark groves and studded with hanging villages, and the summits are crowned by white convents.

Along the coast there is great scarcity of fresh water, accounted for by the fact that the strata dip sharply and carry the water below sea-level. These 'uplifted' strata are a striking feature of the lower Lebanon geology; they are frequently 1,000 ft. high and double that in thickness, and are always accompanied by a scarcity of springs.

South of the Nahr el-Kelb is Ras el-Kelb, and beyond is Jūn el-Khudhr, or St. George's Bay with a sandy shore extending to Nahr Beirut; this bay is the usual winter anchorage for war vessels and several streams fall into it. Onward to Ras Beirut, a low but abrupt point, there is a succession of small bays separated by rocky points.

The low hills surrounding Beirut are mostly of reddish sand interspersed with rock and covered with light soil; they are offshoots from the mountain, which itself follows the coast in a parallel line at a distance of three to four miles inland from the town. The western extremity of the promontory is rocky, as also the shore, for a considerable distance southward. The rock in the neighbourhood of Beirut and Tripoli is of the same porous sand conglomerate and on the shore at the former place it is constantly wearing away. The sand is driven inland by the prevailing SW. winds, but here the encroachment

has been much faster than at Tripoli. Between Ras Beirut and Ras ed-Dāmūr the shore is sandy and nearly straight, and a rich well-cultivated plain with olive-trees spreads out to the foot-hills which rise abruptly. Blown sand has encroached very seriously on the southern side of the ras and, in the seventeenth century, the famous pines of Beirut were planted against this encroachment.

From Ras ed-Dāmūr to Ras Jedra the beach is sandy and beyond it becomes rocky and barren to Ras Rumeileh; thence it is again sandy for 7 miles S. of Saida. Ras Sarafend is a double-headed bluff with a small islet; a narrow plain skirts the coast on both sides of this headland, the hills rising from 400 to 500 ft. high. Between Saida and the Nahr Qāsimiyeh is the plain of Abu el-Aswad nowhere more than 2 miles wide, except at Saida where the mountains recede. The surface of this plain is undulating, and the soil is black and fertile.

Relief.—Maintaining the characteristic formation of the Syrian coastal range, the main Lebanon ridge lies close over the eastern base. There the slopes in general are therefore short, falling precipitously to the great central depression. North of Zahleh, however, the base spreads eastward and the slopes become longer and less steep, finally merging into the low hill-country opposite Homs. The chief and, in fact, the only important aspect is, accordingly, the salubrious and well-watered maritime slopes and spurs which constitute the bulk of the mountain area. In general the northern part of the chain is less fertile than the southern part, a peculiarity which occurs also in the central depression and in a much more marked degree in the parallel system of Anti-Lebanon.

The main ridge is practically continuous. The most northern section is named J. 'Akkār, the highest peak of which is 6,980 ft.; its northern slopes fall to the great divide between the Lebanon and Ansariyeh ranges, see p. 331. From the eastern flank of this ridge the great W. Khālīd bends northward, carrying the upper waters of N. el-Kebīr over steep declivities to the basin of El-Buqeī'ah, see

p. 332. Southward, the range at first falls, then throws up its highest peaks, disposed N. to S. in a double row of four and three heads. The eastern four are named by Palmer and Burton J. 'Ayūn Urqush, J. Makmal, alt. 9,998 ft., J., Musqīyeh, alt. 10,142 ft., and Dhahr el-Qadhīb, alt. 10,018 ft.;¹ on the western flank of the last mentioned are the famous cedars, alt. 6,320 ft. The three western heads are J. Timarūn or Qarn Sauda, alt. 10,533 ft., J. Fum el-Mizāb, alt. 9,000 ft., and Dhahr el-Qandil. The names commonly given to the two groups of peaks are J. el-Arz, 'cedar mountain,' or Arz Libnān, and J. Fum el-Mizāb respectively. The whole block also goes by the name Dhahr el-Qadhīb.

For about 10 miles S. of Besherreh the ridge reaches heights of 7,500–8,000 ft., and for 20 miles it sinks to levels of 6,500–7,000 ft., then rises in the great truncated cone of J. Sannīn, alt. 8,650 ft. From this latter as far south as J. Kenīseh the ridge drops to a plateau of 6,000 ft. J. Kenīseh, rises to nearly 7,000 ft., from 1,500–2,000 ft. above the highest point on the old Damascus chaussée at Khān Muzhir, alt. 5,020 ft., from which place the summit is easily accessible. It is an oblong mass about 5 miles long, with a ruined church on the summit which gives it its name.

The ridge continues southward, under the names of J. el-Bārūk and J. Niha, for over 40 miles more, at a level of about 6,500 ft., ending in the twin peaks of Tūmāt Niha. The declivities of these two sharp peaks sink on the E. to the chasm of the Lītāni. W. of the Bārūk ridge there is a depression several hundred feet deep, dividing it from the parallel ridge of J. Ma'sir, alt. 6,590 ft. South of Kefr Hūneh the mountain finally takes the name of J. Rīhān, 'myrtle mountain,' and ends in the slopes which fall S. and E. to the Lītāni. The western ridge of Lebanon and indeed its

¹ Later travellers have difficulty in identifying the names given by Palmer and Burton, as natives sometimes give quite different names, and besides cause confusion by interchanging the names here given. Post, P.E.F., Q.S., 1891 draws attention to this confusion and gives barometrical determination of the heights which shows considerable variation.

great western slope may be said to terminate at Nahr Awwali. The high crest or backbone of the mountain lying E. of the rivers of Bārūk and Jezzīn continues southward, though sometimes broken into lesser ridges.

The centre of the chain is marked by J. Sannīn and J. Kenīseh, which, on account of their isolation, are the most imposing peaks. Between Dhahr el-Qadhib and J. Kenīseh there are a great number of funnel-like depressions or 'sinks' which retain the snow, and from the bottom of which the water is conveyed to natural underground reservoirs, see p. 367 and p. 395. For about two-thirds of the total length of the range, the ridge rises to sub-alpine altitudes. On J. Bārūk some stretches are so narrow that both mountain sides are visible at one time. In altitudes above 4,000 ft. the heights often stand up in crags of fantastic shape or in huge blocks with perpendicular flutings.

Roads cannot run along the cliff sides on account of their sharp pitch, except where projecting ledges divide the heights into gigantic steps. The rounded ridges are, however, almost always rideable, and they are often the only natural highways in the land. The crest and slopes of the main ridge are usually covered with hard shingle, called by Burton a 'natural macadam'. He further adds: 'The yellow interstitial soil which underlies this natural macadam is swollen and puffed up, especially after rains and thaws, and finally the solar rays loosen and crumble it, rendering the surface easy to man and beast.' 'When walking the mountaineers prefer it to the stones.' 'The round-topped hills of the limestone formation are so easy and regular that one can ride without dismounting to the very summits of the Lebanus, the Anti-Lebanus and the Hermon, whilst everywhere goat-paths streak the highlands.' 'Those nature-metalled Fiumaras and mountain slopes of the Anti-Lebanus are perhaps superior to all others; up many of them a carriage-and-four might be driven.' On account of the impassable nature of the gorges the regular chaussées zigzag along the flanks or traverse the ridges of spurs; wide détours are necessary, hence communications are prolonged to an incredible extent.

From December to early April these upper heights are swept by furious winds and torrential rains, and are covered with snow; avalanches are common. Much cultivation is found in the gorges and sheltered plains, and it will extend to an altitude of 6,000 ft. and even higher.

The spurs of the western slopes radiate from the four great mountain amphitheatres of Sîr, Besherreh, Afqeh, and Ham-māna. A multitude of wild rocky gorges, many of which are deep and impassable, intersect the mountain and spurs; in them are numerous large springs near which prosperous villages and richly cultivated terraces cling to the rugged heights. Many villages also lie in irrigated valleys where luxuriant growth fringes the streams. In such positions practically the whole of the inhabitants of the Lebanon are located. Wherever soil is found the rocky slopes have been reclaimed. Innumerable terraces scale almost inaccessible heights, transforming the seemingly barren mountain sides into luxuriant hanging gardens where mulberry and vine yield rich harvests.

The district of Dhanīyeh, lying on the N. between J. Tarabul and the highest peaks of the range, consists of an intricate series of most rugged gorges. It is one of the best watered districts in the Lebanon: springs are numerous and large, the surplus waters being carried in canals along the sides of ravines and distributed to the terraces. Similar characteristics, in a more or less degree, obtain throughout the whole mountain. Dhanīyeh is in particular a region of forests, the sides of its gorges being clothed to their rocky tops with large trees, chiefly pines. Lying NW. of this district, and separated from it by the broad valley of the northern branch of N. Qadisha, is J. Tarabul, alt. 2,250 ft. It rises from the foot-hills near Tripoli, and because of its isolation is a most prominent point; its limestone formation shows singularly plaited and twisted stratifications. A similar ridge, though much lower, runs south of Tripoli, and between it and J. Tarabul there is a long plain 5 to 6 miles wide, stretching far to the south and cut through by N. Qadisha, near Zgharta.

North of a line 'Arqa-'Akkār numerous trap-dykes have been driven up like great wedges through the marl and limestone strata, taking every possible shape and direction. Toward the N. el-Kebīr precipitous trap chasms traverse the slopes from E. to W. across which communication is impossible ; roads consequently run generally parallel to these chasms. This region is strewn with trap boulders everywhere piled up in heaps, and among them grow thick gnarled oaks over an area 20 to 30 miles from SW. to NE., forming a most striking feature of the landscape.

In the region of 'Aqūra, alt. 4,720 ft., at the base of J. Mu-neiterah, the country is barren and wild. The stratification is perfectly horizontal, and some of the layers are as much as 100 ft. thick while others are only a few feet. Southward of Afqeh, alt. 3,615 ft., and high up on the flank of J. Sannīn is a plateau called Wata el-Burj, roughly 10 to 12 miles in length and 6 miles wide. It affords excellent pasturage and many spots are overgrown with oak and barberry trees. There are no fountains, but in spring the melted snow from numerous 'sinks' provide a sufficient supply of water. The pasturage is frequented by nomads who bring large numbers of sheep into the district.

The kaza of Meten behind Beirut, within which are the popular resorts of Brummāna and Beit Meri, is one of the richest and most salubrious districts, and its gorges and spurs are partially clothed with pines. In contrast to this, the country between J. Rihān and Saida is rolling and uneven, with rounded hills and broad valleys. Deep valleys have their beginnings in the flank of Rihān and high ridges run out between them, forming buttresses which gradually sink to the open country.

The surface of the eastern slopes, for the most part, is barren and unsuited to occupation, the few scattered villages lying mostly close to the base. On the upper base of the main ridge, in the latitude of 'Aqūra, is W. en-Nusūr, an elevated valley containing the only lake of Lebanon, Bahret Yamūneh, which resembles a mountain tarn and is said to become almost

dry in summer. NW. of the lake bed is the spring Neba' el-Arba'in, one of a series of enormous 'sinks' which extend as far northward as Merj Ahīn. The type is common throughout Lebanon and Anti-Lebanon; they are called *jūreh*, meaning a 'hollow' or sunken plain, and vary very much in size, the smallest being only a few yards wide. Usually without surface outlet, the water from melted snow or springs filters through these beds into the heart of the mountain.

W. en-Nusūr runs parallel to the main ridge, separating it from the eastern outlier. It falls southward toward Yamūneh, and carries a small stream fed by the copious 'Ain 'Ata, alt. 5,025 ft.; the drift wood fringing the channel testifies to the force of its winter volume. Along the partially fertile valley there runs a much-frequented track to the Cedars. Northward, amongst rugged limestone débris, is the watershed between W. en-Nusūr and a continuation of the depression falling northward, named W. 'Ayūn Urqush,¹ a place of springs bubbling out everywhere from the foot of hills and forming a stream which soon filters through the ground. This is a favourite watering-place for thousands of sheep and goats. Still farther northward and maintaining the high altitude, there lies, at the base of J. 'Akkār, the fertile plain, Merj Ahīn, about 4 miles long by $\frac{1}{2}$ to $\frac{3}{4}$ mile wide, with a copious spring at either end.

The slopes of the main ridge extend in an unbroken line, steep, naked, and barren, and the whole surface is covered with loose gravel overlying smooth and rounded summits. Here and there a solitary oak clings to the mountain side, but otherwise there is no verdure. The parallel outlier east of Wādi en-Nusūr is named Esh-Sha'reh and, opposite Ba'albek, it is known as Sha'ret el-Ba'albek. It is in some places almost as broad as the main ridge; but its features are altogether different. The outer slopes are easy and are furrowed by winding

¹ The W.O. Map 1916 shows a ridge west of W. en-Nusūr, separating it from W. 'Ayūn Urqush and the continuation of the depression to Merj Ahīn, whereas Burton, *Unexplored Syria*, 1872, shows a continuous depression over the whole distance, the watershed of which is just SW. of 'Ayūn Urqush.

ravines which descend obliquely toward the north ; immediately over the Orontes channel the face is abrupt and in the vicinity of Neba' el-'Āsi it drops to a deep chasm. The surface is sparsely covered with oak, wild plum, hawthorn, and other trees, to the effect of which the ridge owes its name *sha'ra*, 'hairy,' in contrast to the baldness of the main ridge. The ridge runs from J. Sannīn northward to the end of the chain, and its lowest and narrowest part is a little S. of Yamūneh opposite where the central depression attains its greatest width. Northward it increases in height and width, encroaching more and more upon the plain ; the greatest height of the ridge and the least width of the plain are found opposite Fikeh, a village at the base of the Anti-Lebanon.

In the vicinity of Zahleh and Shtōra the mountain sides are richly cultivated with vines, and closely resemble the western slopes ; here a considerable stream, N. Bardāni (see p.403), flows to the Lītāni. Southward the short and precipitous slopes are scarred only by the beds of winter torrents. On the southern part, along the base of J. Rihān, there runs a line of low sharp ridges, which become higher toward the S. Between them is a valley running NE. to the Lītāni in which is the large village of Meshghareh. Just opposite Jisr Burghūz the slopes are intersected by W. Sifsāf, up which the road to Jezzīn leads ; immediately to the north is a broad low swell about 1 mile wide, thrown eastward from the base, through which breaks the deep chasm of the river. Farther south another similar spur, a prolongation of the southern foot of the Lebanon is thrown out. It passes over and into the lower ridge east of the ruined Qal'at esh-Sheqīf perched on a cliff 1,500 ft. sheer above the Lītāni, near the point at which this river bends west to the sea.

Geology

While the bulk of the mountain and all the higher ranges are, without exception, limestone of the early Cretaceous period, the valleys and gorges are filled with formations of every possible variety, sedimentary, metamorphic, and

igneous. Down many of them are long streams of trap and basalt, occasionally dykes of porphyry and greenstone, and then patches of sandstone before the limestone and flint recur. North of the line 'Arqa-'Akkār is the great trap belt which lies across the southern part of J. Ansariyeh and the northern slopes of the Lebanon. The Lebanon has thick deposits of lignite, of inferior quality owing to the presence of iron pyrites. Iron is abundant but little worked.

A characteristic feature of the geology of the lower Lebanon, north of Beirut, is the uptilted strata which slope sharply seaward to submarine levels. Throughout the western slopes of the mountain the strata of the flanks of the gorges dip toward the sea. South of Beirut the lower hills are formed of hard crystalline limestone much dislocated and contorted. Surmounting all, in the hills behind, is a belt of calcareous limestone, interspersed with flinty bands and nodules, which may be traced as far as Judaea, and which, here as elsewhere, is variegated with silicated calc. The surface, being now much decomposed, the flint layers stand out conspicuously. Throughout Lebanon and Anti-Lebanon the soil formed by the disintegration of rich fossiliferous cretaceous limestone strata, and the black soil formed by the crumbling of the volcanic rocks, are constantly renewed and need little fertilization.

For description of the river systems of this district, see Chap. XIII.

ANTI-LEBANON

Area

The Anti-Lebanon mountain system is bounded N. by the plain of Homs, S. by the highlands of Jaulān, E. by the cultivated plain fringing the desert, and W. by the great central depression.

The central depression, from its northern limit near Quseir southward to Hūleh marshes, is about 110 miles, having a superficial area of something like 300 sq. miles. The

mountain system runs for approximately 105 miles on a NNE. and SSW. axis, with an average width of 25 miles and covers an area of about 2,500 sq. miles. The whole territory is under the vilayet of Damascus, with the exception of the small strip at Hermil, which is in the province of Lebanon, and of Merj 'Ayūn which is in the vilayet of Beirut.

The most northern part of the central depression is administered by the kaza of Homs in the sanjaq of Hama. Southward it comes in succession under the kazas of Ba'albek, Biqā', and Hāsbeya, all in the sanjaq of Damascus. Still farther south the Merj 'Ayūn, under the kaza of the same name, is in the sanjaq of Beirut. On the west side of the Orontes, near where the kazas of Ba'albek and Biqā' meet, the nahiyeh of Hermil is enclaved.

The mountain tract in its northern part comes under the kaza of Homs. In succession southward it is under the kazas of Nebk, W. el-'Ajam, Dūma, and Damascus. The western slopes of Hermon are under the kazas of Rāsheya and Hāsbeya; the eastern extremity of Hermon, including Bāniyās, is under the kaza of Quneiterah, in the sanjaq of Damascus.

Physical Features

The Central Depression.—The great valley plain between the Lebanon and Anti-Lebanon ranges, known in antiquity as Coelesyria, marks the northern extension of the Ghōr or Jordanic line of erosion. Lying at an average altitude of 2,500 ft., it stretches for about 100 miles on a NE.-SW. axis. The middle section is spread out in a wide, fertile and well cultivated plain. Northward it is gradually constricted by the spreading base of the maritime range, and becomes in a large measure infertile, but finally merges into the rich Homs plateau near the latitude of Quseir. In conformity with the distinctive character of the mountains, the southern part retains its fertility but is also reduced in width by the great base of Hermon. Besides, it is here divided by the intermediary range of J. edh-Dhahr, a low limestone ridge

forced up into the axis of the depression, and forming the watershed between the parallel rivers Lītāni and Hāsbāni. At the south-western base of this ridge, where the valleys reunite, there commences a fertile tract, Merj 'Ayūn, which falls southward to the spreading marshes and fertile plain of Hūleh at the head of the Ghōr.

The depression contains the principal sources of the three great rivers of Syria—the Orontes, the Lītāni, and the Jordan. Most of the depression is therefore fairly well watered, particularly in the southern part, although the Lītāni, for much of its length, is impracticable for irrigation on account of the deep chasm in which it lies. The valley bottom has been raised by successive moraine strata; the volcanic formation is found southward of Rāsheya, and also in the most northern part on the l. bank of the Orontes. The narrowest part is opposite Fikeh, S. of Ras Ba'albek, where it is only 2 miles wide; the widest part is about half-way between J. Sannīn and 'Ain 'Ata, where it is about 8 miles wide.

Terrific cold tempests occasionally sweep the plain during winter, causing serious loss of life. Violent whirlwinds are also common. Snow falls in winter, and in spite of the high altitude fever is generally prevalent. At Meshghareh, alt. 3,000 ft., in a small valley at the base of Tūmāt Niha, 55 in. of rain fell in 60 days between October and April 1895-6; during the same months of 1898-9 the fall was 22½ in. These two records probably represent the maximum and minimum for the locality; in each period the greatest fall of 28 in. and 10½ in. respectively, was during the months of January and February.

The name *Sahelet Ba'albek*, 'plain of Ba'albek,' is given to that part of the depression lying north of the parallel of Zahleh. It is a fertile but not too well watered tract as far N. as Ba'albek where lies the plain Merjet el-Barada, which is flooded in winter and in summer retains water from the uplands at a level of 3-4 ft. below the surface. This place is frequented by nomads and their flocks, and cavalry

horses are sent here for spring grazing. The crest of the watershed, alt. 3,600 ft., lies, at this point, between the channels of the Lītāni and the Orontes; the upper springs of both rivers lie westward of Ba'albek, separated by a narrow strip of rolling country. East of Ba'albek are the copious springs of Ras el-'Ain and, high up in a valley of the lower Anti-Lebanon, is 'Ain Lujuj. North of the watershed the plain is a partially cultivated stretch of slightly undulating land. Opposite Lebweh a fine vale extends diagonally across the whole plain from mountain to mountain; farther N. the surface commences to break into hard, sterile, parallel ridges and swells strewn with basalt blocks intermingled with limestone and flint.

In the midst of this barren tract lies the well-watered oasis of Hermil. In the neighbourhood of Ribleh, alt. 1,740 ft., there is a sudden change to a tract of fine deep soil, well cultivated and abundantly watered, which continues for two or three miles. Plains of great fertility and beauty stretch on every side, affording plentiful pasture for large flocks whose Bedouin owners encamp along the low river banks. Here access is easy from every direction and this, together with abundant water and salubrious air, make the locality most suitable for military encampments. Indeed the ancient city of Ribleh, now entirely destroyed, was, in antiquity, used as the head-quarters of large armies. Beyond this fertile tract the stony and barren plain again commences, finally merging into the fertile Homs plateau.

Metāwileh villages are sparsely scattered about the plain and western mountain slopes all the way between Ba'albek and Ribleh and there are numerous mounds similar to those found throughout the plateau as far N. as Aleppo. Wild ducks, herons, and storks are seen everywhere.

El-Biqā', the name often given to the whole plain, strictly applies only to that part extending southward from Zahleh to the parallel of Rāsheya; south of this the J. edh-Dhahr ridge divides the depression into two parallel valleys. In order to distinguish this plain from others so named, it is

known as El-Biqā' el-'Azīz. It is divided by the Lītāni into two parts—Esh-Sharqi, 'the eastern,' and El-Gharbi, 'the western.' The former is by far the larger part, but is less well watered than the latter, which is a narrow strip lying hard against the base of Lebanon. El-Biqā' proper resembles the low lands of southern England. Of rich red soil and generally undulating, it is green with trees and foliage even in summer, and presents a striking contrast to the brown and yellow mountain masses on either hand. On its surface are many settlements the largest of which are found close to or on the mountain bases, while the smaller villages and hamlets of mud hovels are scattered about. A large part of the plain is covered with vineyards. Between El-Biqā' and the Anti-Lebanon there is a line of low hills which projects northward to Mejdel 'Anjar, forming a narrow valley in continuation of W. et-Teim.

Merj 'Ayūn, average alt. 1,820 ft., lies at the southern end of the central depression, and is bounded on the W. by the Lītāni, and on the E. by a great basalt dyke from 200 to 300 yds. wide which lies N. and S. for several miles. It is an oval-shaped plain about 8 by 3 miles, its northern extremity being marked by Tell Dibbin at the south-western base of the J. edh-Dhahr ridge; its southern limit is at Ābil. The soil is exceedingly fertile, producing fine grain crops and luxuriant pasturage for immense flocks and herds; among the green fields are orchards of fig, mulberry, and olive-trees. It is abundantly watered, the chief spring 'Ain Derdāra sending a stream from the centre of the merj southward to El-Hūleh. South of Kheim, the chief village of the district, the plain extends in a tolerably even surface east and west to the very bases of Lebanon and Hermon. It falls gently southward, dropping in a series of stepped plateaux of volcanic formation to the plain of Hūleh. These steps fall 50 ft. or more, the upper series running in a NE.-SW. direction, and the lower series more E. and W. and through them the Hāsbāni cuts its way in a precipitous basaltic gorge.

The Mountains. The four chains of Anti-Lebanon have

been compared to the four fingers of a left hand pointing northward, palm upward. In the system thus represented, J. esh-Sheikh (Hermon) constitutes the palm; the westernmost chain, J. Zebdāni, the fore finger; the main chain, J. esh-Sharqi, the second finger; J. Qalamūn the third finger; and J. Khitmeh the fourth or little finger. The second, third, and fourth chains are cut through close to the 'palm' by the deep gorge of W. Barada, which here breaks northward between the first and second chains.

Anti-Lebanon proper is said to exclude Hermon, although in the following description that great massif is included, as it does in fact form part of the same mountain system. In general, the aspect of the mountains of Anti-Lebanon is more striking than those of Lebanon: colouring is richer, and forms present sharper contrasts, while there is a much more marked difference between the aridness of the northern part and the fertility of the southern. The slopes are everywhere intersected by ravines of singular wildness and grandeur, but there is a scarcity of perennial streams, springs being found mostly on the lower slopes.

Jebel esh-Sheikh (Mt. Hermon), although not the highest, is, on account of its form and position, the most imposing mountain in Syria, and is the most easily distinguishable over a far spread region. In form it resembles a gigantic fin-back whale; it lies in a general direction NE. and SW., with its higher end N. On the N. its limit is marked near Qatana by a ravine between the most northern spur and the low hills, Qalabāt el-Mezzeh, that bound the desert tract known as Es-Sahra. The north-western continuation of this boundary is indefinite but appears to be marked orographically by W. el-Qarn and W. Barada. On the west the slopes fall to El-Biqā' and W. et-Teim, on the east to the plain and, on the south, to the basin of Hūleh and the highlands of Jaulān plateau. The formation of the base and lower slopes is basalt, above which the whole massif is of limestone fairly uniformly super-imposed and similar to that along the Lebanon ridge. The lower slopes of the mountain are well watered.

Conflicting accounts are given of the ascent of Hermon, some travellers declaring it to be easy and others to be difficult and fatiguing. The most convenient starting-points from the E. are Hāsbeya and Rāsheya, and from the W. Qal'at Jendel; the climb is usually impossible before May, after which the tracks are rideable. In winter the mountain for the most part is covered with snow which remains on the crests and in many of the shaded hollows through the summer. By September there is very little snow left, but it commences to fall again in November.

The summit has three peaks of which two lie approximately N. and S., 200–300 yds. apart, and are of almost equal height being joined by a flat plateau with a depression in the middle. On the summit of the southern peak there are remains of a temple. The third peak, El-Muhabkhīyeh, about $\frac{1}{4}$ mile to W. and separated by a valley, is somewhat lower. The alt. of the most northern and highest peak has been variously estimated; West gives it as 9,700 ft. On the NW. and SE. the declivities of these peaks are steep, while on the NE. and S. the slopes are more gentle for over 2,000 ft. down to ridges which run out in these directions.

The surface of Hermon above Rāsheya is covered with loose sharp fragments of white limestone which can only be traversed with great difficulty; when the shingle is disturbed, wide surface scatters are set in motion down the steep slopes. Along the mountain side, toward the S., the ravines run westward and the spurs become naked calcareous rock with intervening slopes of loose stones; there is little or no vegetable life except in spring and early summer when a rich flora is found up to the summit in those areas where there is good soil. The mountain top where rock does not crop out, or where there is no soil, is covered with shingle. On the eastern side, which is very steep, the rock is harder, and shingle is only found in the narrow gulleys.

On the lower western and south-western slopes in the vicinity of Kefr Qūq, Rāsheya, Hāsbeya, Rāsheyat el-Fukh-khār, Shub'ah, Bāniyās, and Mejdēl esh-Shems, the mountain

is characterized by fertile and picturesque ravines with luxuriant vineyards and orchards. There are many copious springs and considerable wooded areas chiefly of oaks, particularly in the south-western part. In the vicinity of Hāsbeya the rock is dark red sandstone and the ground and springs are strongly impregnated with iron. Between Tell el-Qādhi and Bāniyās is a park-like and well-watered expanse thickly studded with small oak and other trees. The hill of Bāniyās is cut off from the southern flank of Hermon by W. Khashābeh and, at its foot, is the grotto of 'Pan', one of the chief sources of the Jordan (see p. 648); the locality is densely wooded.

Below Mejd el esh-Shems, alt. 3,780 ft., is the remarkable lake Birket er-Rām, alt. 3,590 ft., about 3 miles in circumference, lying in a crater at a level of about 80 ft. below the lip; the sides are steep and difficult of access, and are bare except on the south, where there are large flowering shrubs and small trees. The lake has neither outlet nor inlet and its depth which is said never to vary, was found by Burton (1872) to be $17\frac{1}{2}$ ft. The temperature of the water in May was 68° Fahr.; it is unfit to drink and swarms with leeches, frogs, and water snakes. The shore is fringed with papyrus and other water plants. Running northward from the lake is the picturesque valley Merj el-Yafūri, surrounded by wooded heights, along the southern extremity of which lies the Roman road from Bāniyās to Damascus via Quneiterah.

The lofty ridge which extends from Hermon southward terminates in an abrupt descent of about 4,000 ft. near Mejd el esh-Shems, close to which is the geographical frontier between Palestine and northern Syria. From this place to El-Fūleh a deep valley sweeps round the southern base of the ridge cutting it off from a lower and broader ridge to S. This latter ridge, almost completely covered with oaks, slopes gently to the eastern plain while taking a more rapid descent to the deep basin of El-Hūleh. East of Bāniyās the formation is in general basalt mingled with sandstone impregnated with iron; the heights around Mejd el esh-Shems, toward the eastern plain, are wholly basalt.

Toward Beit Jenn on the southern slope of Hermon, alt. 3,490 ft., there is a rocky plateau covered with basalt boulders and prickly shrubs, and through the village there flows a fine stream in a wādi the sides of which are lofty and precipitous and composed of naked white rock. The stream is fringed with poplar, walnut and apricot-trees; lower down it is supplemented by another large spring, and together they form the upper waters of the N. el-‘Awaj.

From the northern end of the main ridge of Hermon, a lofty spur runs out eastward and on its southern side is Wādi Barbar, a deep ravine with a small stream, opening out into the plain near Qal‘at Jendel. South of this village is a lofty peak, the termination of another spur, and south of this again is a valley, wider, deeper, and longer than the former, which seems to penetrate the mountain to its centre. From the main ridge to the bed of this valley there is an unbroken descent of fully 6,000 ft., and beneath the brow of the mountain are the small springs which form the Nahr ‘Arni, the chief branch of N. el-‘Awaj and the only important stream on the eastern flank. The eastern plain here penetrates far into the mountain. Just beyond Qatana, alt. 2,975 ft., is a ravine marking the north-eastern limit of Hermon and separating it from the ridge Qalabāt el-Mezzeh, which bounds the desert tract Es-Sahra. This latter ridge is low with gentle slopes of white naked limestone. The northern base of Hermon is irregular and of great width, and extends westward to the village of ‘Aiha, alt. 4,860 ft. At Rakhleh, alt. 5,020 ft., a vast gorge runs SW. into the recesses of the mountain and a fine spring gives fertility to the wild recess.

The Western Chain.—Of the four chains radiating northward from Hermon, the western runs N. by E. from Rāsheya. A little S. of Yūnta it throws off to l. a parallel subsidiary ridge which forms the eastern boundary of El-Biqā‘. The chain then continues northward in a broken and irregular form to J. Zebdāni from which it is separated by W. el-Qarn; this wādi, along with W. el-Harīr of the branch ridge, forms the pass through which the Damascus chaussée is carried.

The broken valley separating the commencement of the chain from Hermon on the E. carries the road from Rāsheya to Yūnta and, here, there is a circular plain between steep ridges, on the eastern verge of which lies the large village of Kefr Qūq. This plain is dry in summer and although not very fertile, is cultivated: in winter it becomes a marshy lake fed by subterranean sources which become active after heavy rains quickly submerging the whole area; the water subsides through fissures on the north-west and south-east.

Beyond W. el-Qarn rises J. Zebdāni, reaching a general elevation of almost 6,000 ft. and extending in an unbroken stretch to W. Yafūfeh. Its eastern flank is rocky and very rugged, and the top is broken and jagged. The northern portion is not so lofty and the sides have a gradual slope toward W. Yafūfeh. Besides the name Zebdāni, the mountain bears that of 'Ain Hawar, or of Sarghāya, or of the various villages on its flanks. It is separated from the parallel chain on the east by a wādi bearing the names of various villages, and by the plain of Zebdāni. This latter measures 8 miles by 3 miles, diminishing to a width of $1\frac{1}{2}$ miles at the southern extremity where the Barada gorge enters and breaks eastward through the great chain J. esh-Sharqi. At the northern end of the plain is the large and flourishing village of Zebdāni, alt. 3,950 ft., and near it is a small 'sink' with a lake which is the principal source of the Barada. Water is abundant and cultivation luxuriant; the fruit orchards, particularly the apple, are famous throughout Syria. Northward of the plain the wādi opens out into the elevated plain of Sarghāya, alt. 4,600 ft., measuring 3 miles by 1 mile; a village of the same name lies at its north-eastern end on the watershed separating the waters which flow to the Lītāni and the Barada. On the south-west the slopes fall to Sahel Jedeideh, a plain about 2 miles wide, running about 6 miles northward from the mouth of W. el-Qarn.

W. Yafūfeh is a narrow ravine with steep sides covered in parts with oak and plane trees and carries the chief northern affluent of the Lītāni. The western slope generally is bleak

and desolate, its jagged crest being scantily clothed with juniper ; the eastern slopes are partially cultivated but there are no trees on the lower parts. Some of the wādis falling to W. Yafūfeh bear oaks.

Jebel esh-Sharqi.—This is the main chain of the Anti-Lebanon system. It trends NNE. from Hermon and is intersected by the great Barada gorge, beyond which it assumes more definite form. The loftiest and most imposing of all the chains, its ravines are of singular wildness and grandeur. The highest peaks rise in the narrow part of the ridge north of Blūdān, and again on the north-eastern flank, where the mountains widen out toward the desert. In marked contrast with Lebanon, it is bare and desolate, the slopes being only very sparsely dotted with juniper trees ; the northern part is almost entirely barren. Water is scarce throughout, especially in the northern part. The valley beds are overlaid by a kind of natural macadam, which frequently affords easy travelling, but there is little communication across the ridge between W. Barada and Hasya. The chain throughout is composed of limestone, with foundations of sandstone and igneous rocks appearing at only a few places.

The eastern slopes at first merge into the J. Qalamūn chain, then disengage and fall to the wide spreading upland where lies the village of 'Asal el-Ward, alt. 5,550 ft. Near this place W. Sahrij marks the division between the parched and barren country northward and the comparatively well watered country southward. Beyond Nebk, the desert in places comes close up to the base of the mountains and all is barren except at Yabrūd, Nebk, and Hasya, where there are good supplies of spring water.

The western slopes are separated from J. Zebdāni by the plain of Zebdāni and W. Kharrād ; a few miles N. of Yafūfeh J. Zebdāni merges into J. esh-Sharqi. Still farther N. the chain again becomes separated from the central depression by a low parallel ridge which commences about a mile NE. of Nahleh and forms the eastern boundary of the plain onward to the Homs plateau.

Opposite Nahleh, where a ravine cuts deeply into the mountain side, the range is composed of three distinct ridges, which merge toward the N. That on the W. is the lowest. The central ridge here appears rising over the former, gradually increasing in altitude as it runs NE. until it overtops the others. The eastern ridge is the loftiest of all toward the S., but it decreases from this point onward. Just above the village of Qā' the western flank is intersected by a deep ravine between which and another ravine above Jūsiyeh, there is a recess; northward, spurs project again into the plain. The northern end of J. Sharqi falls rapidly to the plain, but about three miles from its termination it is intersected by a singular pass which completely isolates the northern group of hills. So straight is this pass that from Ribleh a sight can be taken right through it to a point about two miles N. of Hasya.

There is considerable fertility in the neighbourhood of Blūdān. The lower part of the Blūdān valley is laid out in vineyards and orchards; higher up, the cornfields are watered by numerous small streams issuing from the slopes. About a mile N. of Blūdān there is a band of pure sandstone and a fine spring 'Ain ed-Danleh, one of several mineral springs forming little streams. Near by is 'Ain es-Sareimeh, one of the few places where igneous rock is found and, farther N., at Merjet 'Ain en-Nusūr there are some 20 springs. The upper section of the Blūdān valley is walled on the E. by a continuous line of heights which here form the crest of the chain. In succession northward the highest peaks are Tell Tallājah Ibn Hallāwi, J. esh-Sheqif, alt. 6,850 ft., and Tell Ukhyar (?), alt. 7,795 ft.; some distance farther on is J. Abu el-Hīn, alt. 8,330 ft., and, still farther northward, Harf Rām 'l-Kabsh, alt. 7,810 ft. Beyond, there is very little vegetation, but juniper trees are common.

In the ridges beyond J. Abu 'l-Hīn there is sandstone alternating with lime in detached blocks and wheat and tobacco grow in sheltered places. Here, growth extends to heights of 6,000 or 7,000 ft., but wheat is stunted. The

district is the haunt of bears and wild swine. There are several springs on the eastern slopes between J. Abu 'l-Hīn and Harf Rām el-Kabsh, notably 'Ain edh-Dhura, a fine spring used for irrigating grass fields in a well sheltered wādi. On the slopes from 'Asal el-Ward northward there is a series of parallel detached ridges with trees and separated by deep gorges running in a general direction S. of E. to the plain, their drainage eventually feeding the waters of Yabrūd. The wādīs are Bir Sahrij, Bir el-Washl, Zuweyyid, Batrah, Za'rūr, and Bir el-Khashābeh. The latter rounds the base of the hog-backed Nebi Barūh, alt. 7,900 ft., rising on the eastern flank of the range, and backed northward by a cone Tal'at Mūsa, alt. 8,720 ft. On the slopes in the neighbourhood of W. Sahrij and elsewhere, grow honeysuckle bushes of great size: an average specimen will measure 6 ft. in circumference by 11 ft. in height. On the slopes and plain southward of 'Asal el-Ward the vegetation is chiefly characterized by thistles and thorns.

The peak Tal'at Mūsa is one of a mountain group named J. Ma'aret el-Bāshkurdi from a large mountain village of that name to the SE. The group is drained by the lesser W. el-'Awaj and is separated from the peaks further north by a great gorge. On either side of the latter rises a regular cone, the northern one being named Halimet Subbeh. Here the mountain spurs spread eastward and come down close to the termination of the third chain near Yabrūd. The eastern plain beyond this point is a rolling expanse disposed in regular ridges separated by shallow wādīs; in summer all is barren except where a perennial spring produces a green patch or supports a few poplars.

After a line of insignificant heights northward, the Qarnet or Sadr el-Weiriq rises in a regular pyramid with sharply defined angles. Still farther N. there is a series of peaks named *halimeh* or 'pap'. They are: Halimet Zammārāni a long saddlebacked ridge, H. Qurreis a table mountain, H. Qura'a a round bald eminence, and H. el-Qabu, alt. 8,260 ft., a saddlebacked peak, divided from its neighbours by deep

gorges, which has been erroneously termed the highest point of Anti-Lebanon. At its NW. flank near the base is a plentiful supply of cool sweet water from wells and a spring, and near by is Qabu, now a dry cistern, which gives its name to the mountain. The upper part of H. el-Qabu is revetted with a hard yellow limestone usually banded with pink. This stone is found all over the locality, and being highly ornamental is used for building; the same class of rock is also found in the parallel range of Mār Mūsa el-Habashi. The wādis dividing these mountains naming from S. to N. are W. el-Makhnaf, W. el-Maghāreh, W. el-Harīq, W. el-Weiriq, W. Zammārāni, W. Khirbet el-Barūd, W. el-Māl, W. Mār Tōbiya, and lastly W. el-Qārein.

Jebel Qalamūn.—This is the name¹ given to the third chain which strikes in a north-easterly direction from about Fījeh in W. Barada, to Ma'lūla and Yabrūd, finally sinking into the plain between Deir 'Atīyeh and Qaryatein. On its western flank the chain falls to the wide upland in which is the village of 'Asal el-Ward. On the eastern side it falls to Es-Sahra and the more elevated plain of Saidnāya which latter, toward the north-east, narrows down in parallel

¹ The W.O. map 1916 gives the name 'Jebel Kalamun' to the most eastern or 'little finger' chain apparently following Kiepert's map 'Carte de la Syrie Meridionale' 1860. The Arabic map published by the Ottoman Government, Beirut 1889, adopts the same name. Dr. Post, P.E.F., Q.S. 1891, however, gives this name to the third 'finger' chain running NE. from Fījeh toward Ma'lūla where it presumably joins 'J. Ma'lūla' of the W.O. map. In the latter map this chain is shown indefinitely and in the Arabic and Kiepert's maps not at all. Van de Velde, *Karte von Palästina*, 1866, shows only a line of broken hills named 'Jubbet Asal', whereas Porter, *Five Years in Damascus*, 1855, and Burton, *Unexplored Syria*, 1872, clearly show a continuous chain as far as Yabrūd to which no name is given. Various later travellers verify the existence of this chain, and the above description is compiled from their evidence and Post's nomenclature is adopted. Both Burton and Post draw attention to the inaccuracies in all maps of this region and indeed of the Anti-Lebanon generally.

Kiepert and Porter show the village of Ma'areh, E. by N. of Menin, whereas the W.O. and Burton's maps show it almost due N. of Menin; the former position appears to be correct.

ridges and swells to W. Musakhamīn separating the third and fourth chains. The western slopes in general fall gradually, but those on the eastern side are abrupt and in places precipitous.

At the commencement of the chain the mountains merge into J. esh-Sharqī and, at Halbūn, alt. 4,280 ft., are intersected by the fertile gorge W. Halbūn in the upper stretches of which rises a stream of the same name. This stream continues across the almost entirely desert tract, Es-Sahra, in a deep gorge filled with trees, and is later joined by W. Menīn also a fertile gorge with a perennial stream. The trunk stream then breaks through the easternmost chain to the plain carrying the Nahr Ma'raba which, with the parallel N. Barada, is the only important stream on the eastern slopes of Anti-Lebanon. A lateral ridge separates the Sahra upland from the higher Sahel Saidnāya, the slopes of which on the Sahra side are steep and barren while, on the opposite side, they are gentle and extensively cultivated. On the south-eastern flank of J. Qalamūn stands the important village of Saidnāya, alt. 4,500 ft., overlooking a wild and rugged valley; here the chain is crossed by a track to Jubb Sureir. Toward 'Akōbar the chain decreases in height while the plain increases in width and becomes unfertile. The water drainage of the tableland from 'Akōbar and Ma'lūla runs NE., while that of Saidnāya and Ma'areh runs into Wādi Menīn. Beyond 'Akōbar the chain continues for 20 miles or so as a ridge with a jagged crest. As it approaches Ma'lūla the ridge is twice broken, once by a gorge leading to the village of Jubb 'Adīn and again where the Yabrūd road passes through a gorge to the higher hills. About 3 miles farther on, the ridge curves sharply inward, but later resumes its NE. direction. In the meantime it has formed an amphitheatre-like basin, bounded by immense cliffs which are pierced at the two extremities by rapidly ascending gorges. Great rocks or boulders lie on the steep slopes; or are heaped at the base of the cliff. The limestone soil is of dazzling whiteness, especially just outside the amphitheatre, where there

are ledges of soft white rock. Clinging to the slopes, tier upon tier, are the houses of Ma'lūla. On N. side of the village many threshing floors have been cut out of the soft rock and, beyond these, the hillside is dotted with sumach trees. On the upper hills are vineyards, and, high up in inaccessible slopes to N. and S., there are numerous caves.

A valley watered by streams opens out from the amphitheatre into the long upland; it is rich in walnut, plane, pistachio, apricot, and other trees. Running SE. from Ma'lūla is a valley, separating J. Ma'lūla from the south-western part of the chain, through which is carried a wheel track to Khān 'Arūs on the Damascus-Homs chaussée. In this valley is a fine spring 'Ain et-Tīneh, where there are extensive pistachio plantations and luxuriant gardens.

On the western side of the chain the slopes fall to the broad upland separating the second and third chains. Beyond Ma'lūla the chain is bare and gravelly with steep spurs on either side. On the western flank it falls to a rolling tableland, and a pass carrying a copious stream which flows through Yabrūd separates this tableland from that of Nebk and Deir 'Atīyeh. Toward Deir 'Atīyeh there is a rolling plain but, farther on, the country gradually becomes barren, descending gently to the last cultivated fields of Qaryatein, a border town of the desert. The eastern slopes fall to W. Musakhamīn, separating J. Ma'lūla from J. Suqfiyeh, the name here given to the fourth chain of the Anti-Lebanon system. Both these last-named mountains are barren, and toward Nebk they drop gradually and merge into the plain. About 5 or 6 miles from Khān 'Arūs, and at Qastal, there are gaps in the Ma'lūla ridge through which roads are carried to Yabrūd; about $2\frac{1}{2}$ miles southward of the latter place is the highest point of the road, alt. 4,390 ft.

Jebel Khitmeh.—This is the fourth chain which takes an easterly direction continuous with the ridge of J. Qasyūn. This latter is bare and arid, partly of reddish rock, and is completely separated from Es-Sahra on the south-west by W. Barada and from the continuation of the chain on the

north-east by the wild ravine of W. Ma'raba. At the mouth of the ravine, is the well-watered village of Berzeh, surrounded by fertile gardens. The ridge of the chain beyond this point is jagged in the extreme and a steep talus of débris prevents ascent along most of its eastern flank. Trending to the north-east, the range, now named J. Thenyet Abu 'Ata, sinks to a hilly plateau forming a wide break in the chain and connecting the plain of Qateifeh with the upland of Saidnāya.

The eastern flank of the Khitmeh chain at first falls to the plain, but beyond Qubbet el-'Asāfir there rises the first spur of a parallel ridge, J. el-Qarn, lying eastward and separated from the chain by a ravine. This spur commands the Damascus-Homs chaussée ascending the ravine bed which is wide and shingly and flanked by bare and stony hills. The ravine rises gradually to a col. alt. 3,195 ft., near which the chain sinks to the hilly plateau; beyond the col the valley descends sharply to the village of Qateifeh where there is a good spring and a well cultivated plain of light but stony loam. Here the road strikes N. across the plain, then winds westward up a wide ravine with steep hills on either hand separating the hilly plateau from J. es-Suqfiyeh which re-establishes the line of the chain. J. es-Suqfiyeh is separated from the third chain, here named J. Ma'lūla, by W. Musakhamin and continues north-eastward to the vicinity of Qaryatein where it sinks to the desert. J. Khitmeh is bare and barren throughout with little or no water; large springs, however, occur at 'Ain Quseir in a wild pass NW. of Dūma, at Hafeyer on the NW. flank, and also north of Qateifeh.

For description of the *river systems* of this district see Chap. XIII.

DAMASCUS PLAIN

The Damascus Plain, or *El-Ghūteh*, lying at an altitude of 2,264 ft., is a vast garden covering an area of about 150 sq. miles. From the base of the Anti-Lebanon it extends for over ten miles eastward, the limit in that direction being at Nōleh,

where barren patches of soil appear and gradually increase in area towards the desert country by the shores of *Bahret el-Qibliyeh*, *Bahret esh-Sharqiyeh*, and *Bahret Hijāneh*. The gardens extend northward as far as Dūma, and the northern limit merges gradually into open country and desert. On the south, the boundary is marked by Wadi el-‘Ajam which carries the Zābirāni and the ‘Awaj and which divides the calcareous formation of the Damascus plain from the basaltic region of Haurān. Included within this boundary is J. el-Aswad, at the southern extremity of the plain, a hill group composed of conical *tells* rising not more than 500 ft. above the plain and intersected diagonally by three distinct wādis.

The city of Damascus lies on the western verge of the plain and, scattered throughout it, there are 106 other towns and villages supporting a large population. Fertility is assured by the plentiful waters of the Barada supplemented by the ‘Awaj, Ma‘raba, and other minor streams and by a system of canalization. The luxuriant gardens and green fields produce every kind of fruit, vegetables and grain in great abundance. Groups of silver poplars occur in large numbers over the whole area. The plain is traversed by numerous roads.

Because of the high altitude of the plain, the winter is cold; spring begins about the end of March. The locality is healthy except from the middle of July to the middle of September, when the nights are warm and fever and ophthalmia are prevalent.

For the *Irrigation Systems* of the Damascus Plain, see pp. 417 ff.; *The Desert Lakes*, see p. 420 f.; *N. el-‘Awaj*, see p. 414 f.; *N. Ma‘raba*, see p. 416 f.

AGRICULTURE

Little by little the rocky slopes of Lebanon have been reclaimed by the laborious process of building terrace upon terrace up the mountain sides. The aspect is now that of a vast system of mountain steps with fronts of dry stone walling. The surfaces of accumulated soil are watered by

canals from plentiful springs, and bear rich crops, the principal products being mulberry trees, olives, vines, fruits, vegetables, cereals and beans. The valley beds whose soil has been washed from the slopes before the terraces retarded the process, are usually narrow but they are exceedingly fertile, being sheltered and protected from the bitter winter cold of the higher altitudes. In spite of the cold, wheat is said to grow at altitudes up to 6,000 ft. and vines up to nearly 5,000 ft., while olives grow still higher. In the low country toward the sea, the character of the cultivation changes and wide expanses of arable land are cultivated on the ordinary field system. Throughout the mountain generally, the area under cultivation is comparatively small. This small proportion can be accounted for by physical conditions which entail the maximum amount of labour not only in the work of reclaiming but also in the after work of husbandry. Irrigation systems are, as yet, only partially developed but there is water at hand which when properly utilized, will vastly increase the productiveness of the country. Grain crops are insufficient and only in abnormally abundant years can they be said to yield the amount necessary for the needs of the people. The eastern slopes are generally waterless and unfruitful, but in the vicinity of Zahleh and Shtōra there are extensive vineyards producing some of the finest crops in Syria.

Outside the *mutesarriḥ*, in the lowlands of the *kazas* of Sidon, Beirut and Tripoli there are large and well-cultivated areas. Being a mountainous region the cultivation of the *kaza* of 'Akkār is patchy and undeveloped.

The plains of the central depression, especially El-Biqā' and Merj 'Ayūn, are very fertile and extensively cultivated.

On the lower slopes of Hermon and also in the southern part of the Anti-Lebanon chains, cultivation is patchy. The northern parts of the chains are almost entirely barren. Parts of the upland plains between the chains are fertile but lack water, and are only partially cultivated; the plain of Zebdāni, however, is probably the richest, best watered and best cultivated land in the whole region.

The Damascus plain is the most extensively cultivated area and produces by far the greatest crops of almost every description, see also p. 386.

The figures given below show in a general way the average annual yield in the various districts mentioned. They are based on Cuinet's estimates, 1896-1901, for districts which do not, however, exactly correspond to the regional divisions of Lebanon, Anti-Lebanon and Damascus plain.

The grain crops of the Lebanon mountain are not of first importance, the chief cultures being silk cocoons and olives. Vines are also extensively grown, especially in the district of Zahleh; in 1901 the area covered by vineyards throughout the mutesarriḥ was nearly 5,000 acres. The average annual yield of raisins was estimated at about 3,600 tons, and that of wine at 200 tons. Tobacco is cultivated throughout the mountain, especially in the districts of Batrūn and Jezzīn. The area under tobacco was estimated at 570 acres and the annual yield about 160 tons.

The agricultural produce of the sanjaq of Beirut, which is not included in the mutesarriḥ, and comprises the kazas of Beirut, Saïda, Sūr, and Merj 'Ayūn, reached an annual value of about £960,000, of which about £400,000 represented cereals. Of the remainder, the most important items were cocoons, scammony, sesame, olives, fruits, wool, &c. There are no available statistics for that part of the mountain outside the mutesarriḥ which is in the sanjaq of Tripoli.

The sanjaq of Damascus approximately covers the whole cultivated area of the central depression (excluding Merj 'Ayūn) of Anti-Lebanon and of the Damascus plain; the total annual yield was valued at about £3,690,000. Of this, wheat, barley and other cereals were valued at £930,000, aniseed £614,000, raw silk £560,000, sesame £124,000, olives £184,000, vegetables £320,000, water melons £198,000, fruits and various £480,000. The Damascus plain is by far the most productive area included in above.

Live-stock.—The following figures give roughly Cuinet's estimates of live-stock throughout the whole Lebanon range :

Buffaloes	.	.	.	.	.	.	400
Cattle	.	.	.	.	.	.	45,600
Horses	.	.	.	.	.	.	8,000
Asses and mules	.	.	.	.	.	.	18,200
Sheep	.	.	.	.	.	.	112,000
Goats	.	.	.	.	.	.	316,000
Camels	.	.	.	.	.	.	1,200
Pigs	.	.	.	.	.	.	350
Total	.	.	.	.	.	.	501,750

Included in the above are the stock in the mutesarriqliq, estimated approximately as follows :

Buffaloes	.	.	.	.	.	.	90
Cattle	.	.	.	.	.	.	39,000
Horses	.	.	.	.	.	.	6,370
Asses and mules	.	.	.	.	.	.	9,200
Sheep	.	.	.	.	.	.	3,160
Goats	.	.	.	.	.	.	97,400
Camels	.	.	.	.	.	.	550
Pigs	.	.	.	.	.	.	350
Total	.	.	.	.	.	.	156,120

Pasturage is good but not abundant in the mutesarriqliq ; it is supplemented by the leaves of the mulberry trees on which the sheep are fattened. The second of the above tables shows the small amount of live-stock raised in the Lebanon province. It emphasises the comparatively high proportion of cattle and pack animals, and the low proportion of sheep.

Other products of the province are estimated to yield annually as follows :

Wool	.	.	.	.	.	.	7,880 lb.
Goat hair	.	.	.	.	.	.	35,200 „
Honey	.	.	.	.	.	.	21,000 „
Wax	.	.	.	.	.	.	1,900 „

The estimates of live-stock for the sanjaq of Damascus were approximately as follows :

Cattle	.	.	.	.	.	.	17,300
Buffaloes	.	.	.	.	.	.	11,300
Horses	.	.	.	.	.	.	11,700
Blood horses	.	.	.	.	.	.	5,400
Donkeys	.	.	.	.	.	.	18,300
Mules	.	.	.	.	.	.	11,200
Camels	.	.	.	.	.	.	5,200
Sheep and goats	.	.	.	.	.	.	348,700
Total	.	.	.	.	.	.	429,100
Poultry	.	.	.	.	.	.	232,000

By virtue of privileges granted by the Government to the stock owners of Mesopotamia, about 40,000 sheep are annually brought to pasture on the plain of Ba'albek. Towards winter the flocks which supply Lebanon are brought to the plain. The sheep are of the fat tail species, common to the country. When fat the tail weighs over 30 lb. and is boiled down into *semen* and used for cooking purposes. The Lebanon gets male camels from the Arabs of the desert; asses, mules, and the common breed of horses from Cyprus. The best cows come from the neighbourhood of Damascus; oxen and goats are indigenous.

Sericulture.—Cultivation of the mulberry tree takes first place among the products of the soil and absorbs the attention of the greater part of the inhabitants of the Lebanon. The species is the white mulberry of the country, originally imported from China; it flourishes in the valleys and mountain slopes and large plantations are to be found everywhere.

Mulberry plantations, always very extensive, had greatly increased previous to 1911, chiefly in the districts around Tripoli and Saida as well as in Anti-Lebanon and Merj 'Ayūn. Since then a steady decrease has been noticeable, and in the lowlands many mulberry trees have been uprooted to make room for the more profitable cultivation of oranges.

Olives.—The principal olive cultivation within the whole Lebanon range is found in the kazas of Tripoli, Kūrah, Shūf and Saida. Elsewhere in the mountain and also in the central depression and Anti-Lebanon chains, olives are not so extensively cultivated. At Shuweifāt, in the Shūf district, there are extensive olive plantations.

Tobacco.—See p. 266 f.

INDUSTRIES

Olive Oil and Soap.—The amount of oil produced annually in the districts of Lebanon, Beirut, and Tripoli, as calculated by E. Weakley, is 3,700,000 oqqahs (4,658 tons). Oil is exported from Beirut and Saida to Egypt and Marseilles.

Since 1908 the quantity exported from Saida has very much increased. The following are the figures of the British Consular Reports.

	1909.	1910.	1911.	1912.	1913.	
From Beirut .	1,350	1,200	1,560	1,160	1,100	barrels
From Saida .	1,500	1,700	2,800	1,000	4,000	„

At the date of Weakley's report there were 28 soap factories throughout the Lebanon, 12 of which were in the Tripoli district. The total soap production in an average year amounted to 4,500,000 oqqahs (5,665 tons), of which 2,000,000 oqqahs were manufactured in Tripoli district. Instead of caustic soda, which is generally used in soap manufacture, the Tripoli makers prefer carbonate of soda as also do the makers in other parts of Lebanon. The native *qili*, found in large quantities at Tadmor, and to some extent in the plains of Saidnāya and Jerūd, contains a large percentage of carbonate of soda, and is very much used. Ammoniated alkali is used only by the Tripoli makers. The soap manufactured in this district is of superior quality and is seasoned for over a year before being placed upon the market and being then thoroughly dry it is more economical and commands a higher price. Tripoli soap, especially that scented with *ghār* oil, finds ready markets at Damascus, Homs, Hama and all the coast towns; a fair quantity is also exported to Cyprus. That from the other parts of the mountain is sold chiefly at the coast places and Damascus. See also Chap. VIII, pp. 278 ff.

Weaving.—This industry at one time flourished in Lebanon chiefly at Bekfeya, Deir el-Qamar and Beit ed-Dīn. There are in these places about 2,000 cotton-weaving looms and the products are well known throughout Turkish territory. The industry has, however, fallen into decay, chiefly on account of the scarcity of hands caused by emigration, and also because of the development of weaving in other localities. In Beirut the industry is insignificant. A small amount of dyeing is carried on in the 17 dye-houses of Beirut.

MINERALS

Good iron ore has been extracted from Wādi Sannīn. The bitumen pits at Hāsbeya, some 30 in number, which are the most important in Syria, have been worked off and on for many years. They were abandoned for several years but were worked again in 1902 and 1903. Bitumen of the consistency of coal tar is also found at Yahmūr at the NW. base of J. edh-Dhahr. A concession was granted in 1877 to work an asphalte and lignite mine in the Jezzīn district, but the quality was so poor that the project was abandoned. Coal is found in the Meten district; the deposits were worked during the Egyptian occupation of Syria, but have long been abandoned, although small quantities are sometimes extracted to supply the silk factories in the locality.

A considerable revenue is derived from the working of quarries.

INHABITANTS

As elsewhere in the Ottoman Empire, reliable statistics of the population of Lebanon and Anti-Lebanon are unobtainable, and estimates by different authorities vary widely. From 1911 till the outbreak of war there was a very large increase in the number of emigrants (chiefly to America), caused by the recently imposed military service, and by the steady decline in the silk industry. The numbers of emigrants for 1911, 1912, and 1913 were estimated at 20,000, 25,000, and 30,000 respectively.

Weakley gives the population of the Lebanon mutessarriflik as 450,000. A British Consular Report (1912) gives it as 200,000; another authority (1913) estimates the population of the province as not greater than 300,000.

The figures, according to Cuinet's estimates, are approximately as follows :

Moslems (including 16,800 Metāwileh)	.	.	.	30,400
Christians (including 229,700 Maronites)	.	.	.	319,300
Druses	.	.	.	49,800
Total	.	.	.	399,500

Of the above, over three-fourths occupy the kazas of Shūf, Meten, Kesrawān, and Batrūn; the first two districts include 40,000 and 9,600 Druses respectively—practically the whole Druse population. Metāwileh are found chiefly in the kazas of Shūf, Meten, Kesrawān, Batrūn, and Jezzīn.

In addition to the above, the numbers of the population within the kazas of Beirut, Saida, Tripoli, and 'Akkār are, according to Cuinet's estimates, approximately as follows :

Moslems (including 8,800 Metāwileh)	.	.	.	.	116,600
Christians (including 44,000 Maronites)	.	.	.	.	132,800
Ansariyeh in 'Akkār	.	.	.	.	1,700
Jews	.	.	.	.	4,000
Druses	.	.	.	.	400
Total	.	.	.	.	<u>255,500</u>

Included in this total is the population of the city of Beirut, estimated at 120,000, including 76,700 Christians. A later authority (1913) estimates the population of Beirut at 185,000, two-thirds of which were Christians.

In the central depression and Anti-Lebanon mountains the numbers, according to Cuinet, are approximately as follows :

Moslems (including 8,500 Metāwileh)	.	.	.	.	40,400
Christians (including 11,000 Maronites)	.	.	.	.	65,000
Jews	.	.	.	.	6,300
Druses	.	.	.	.	3,500
Total	.	.	.	.	<u>115,200</u>

Jews are found chiefly in the kaza Rāsheya; Druses chiefly near Hāsbeya; Metāwileh chiefly round Ba'albek, their villages being scattered along the eastern slopes of the Lebanon and the plain north of Ba'albek.

For the city and plain of Damascus Cuinet's estimates are as follows :

City of Damascus—					
Moslems	.	.	.	.	99,000
Christians	.	.	.	.	51,000
Jews	.	.	.	.	4,000
					<u>154,000</u>
Population of the villages on the plain within the					
kaza of Damascus	.	.	.	.	10,000
Total	.	.	.	.	<u>164,000</u>

Besides these there is the population of the larger number of the villages on the plain within the kaza of Dūma for which no statistics are available.

An estimate (1909) puts the population of Damascus city at 250,000, about seven-eighths of whom are Moslems. The Christians were then said to be decreasing, while the Jewish population of 12,000 remained stationary.

CHAPTER XIII

RIVER SYSTEMS OF NORTHERN SYRIA

THE main watersheds of Syria run N. and S. on either side of the great central depression which can be traced southwards from the Anti-Taurus range to the Gulf of Akaba. The system is divided into three almost parallel belts: (1) the central, valley, belt abundantly watered by the principal rivers and their affluents, (2) the western, coastal, belt well watered by short lateral streams, (3) the eastern belt between the depression and the desert, where there are large unwatered tracts, the Damascus plain being the only area where water is plentiful.

The principal rivers of northern Syria flow either north or south. They are the Orontes and the Litāni, flowing north and south respectively from the watershed of the central depression (see p. 18 f.), and the Hās̄bāni which forms the upper waters of the Jordan. Their sources are in the mountain bases and in the great depression which forms the only bed of great length in the country.

I. THE LEBANON AND ANTI-LEBANON

The mountain slopes falling west to the sea are watered by many streams, while those falling east to the desert are scantily watered. The inner slopes falling to the depression, while supplying the main sources of the three chief rivers, afterwards contribute very little to their volume.

Numerous subterranean caverns in the limestone of the Lebanon provide natural storage systems, to and from which there are natural collecting and distributing channels. On the summits of J. Sannīn, J. Kenīseh, and part of the chain above the Cedars, there are funnel-like depressions or 'sinks'

peculiarly adapted to collect and retain vast snow-drifts. These are common both to Lebanon and Anti-Lebanon, and from them veins convey the melted snow to reservoirs in the heart of the mountains. Thence the dipping strata carry the waters to innumerable points on the slopes there to burst forth in copious perennial springs. A peculiarity of the lower Lebanon north of Beirut is the sharp seaward tilt of the strata to submarine levels where the waters sometimes gush up so copiously as to provide fresh-water supplies. This geological peculiarity is always accompanied by a scarcity of springs on the plain and lower hills. The rivers derive their water either from the basalt, sandstone, or secondary limestone; in point of quality the first is the best and the last the worst.

A characteristic of the rivers of the western slope is the great abundance of their sources which almost invariably gush at once from the mountain sides as considerable streams. Their number and volume often make it difficult to identify the real source of a river, and there are consequently discrepancies in statements made by various writers. Bursting usually into shallow basins, they flow rapidly with frequent cataracts and falls, tumbling over rocky beds and through deep chasms to the narrow maritime plain. The water-courses are formidable obstacles to inland communication, the wādis being invariably deep and the streams often impassable. Some of the larger streams are fordable at comparatively few places in summer, while practically all are impassable during the rains. Further peculiarities of many of the streams, particularly on the western slopes, are the sudden changes in direction and their occasional disappearance into subterranean courses, to reappear farther down the mountain in positions which make identification doubtful.

Sudden and extremely violent spates are frequent during the rainy season from the end of October to the beginning of April, the heaviest fall being usually in December and January. Bridges are frequently carried away by the floods or by masses of rock which tumble down the steep and

confined beds. In spite many of the streams take a reddish colour from the ochreous soil along the mountain sides. Spates, however, quickly subside as the rainfall drains off very rapidly, but from January to May all the Lebanon streams run deep. During these five months the streams are also very considerably augmented by percolation from the slow melting of the snows; during summer many of them are reduced to a mere trickle. A common feature is the existence of sand-banks across their mouths.

The Orontes, Nahr el-'Urunt, or El-'Āsi

The Orontes is the largest river in Syria and has its most remote source at the base of Lebanon about 1 mile N. of the watershed running westward from Ba'albek. The upper sources of the Lītāni and the Orontes, flowing southward and northward respectively, are about 1 mile apart separated by a shallow wave of land. The Orontes source, Neba' el-'Illa, issues from the foot of a tell a few miles westward of Ba'albek, in a trickling course of excellent water, soon augmented by other springs, the largest of which is Neba' el-Quds. Thence the channel, carrying little or no water in summer, traverses a partially cultivated undulating plain to opposite Lebweh, where it is joined on the r. by a stream of considerable volume from 'Ain Lebweh $\frac{3}{4}$ mile WNW. of the village. This spring gushes out in four separate channels on different levels; that to E. is said to have supplied Palmyra and does in fact go as far as Qā' about 14 miles distant. The stream, here called N. Lebweh, flows at first in a deep ravine clothed in luxuriant foliage, but soon turns down the eastern side of the great depression in a deep and narrow chasm through a desert tract. Near here another copious spring, 'Ain Zerqa, adds its waters from a valley filled with plane trees festooned by wild vines. About 200 yds. below 'Ain Zerqa is the fine spring Neba' el-'Āsi, issuing from the eastern side of a chasm, close under the Lebanon. The trunk stream which, above 'Ain Zerqa, is only an insignificant stream not a foot deep, now becomes a swollen and impetuous

river 70 ft. or more wide and 3 to 6 ft. deep. Although the channel is here thickly lined with trees, the depth of the river-bed is so great that they are invisible from a short distance.

The river now winds in its deep chasm and receives another copious spring on the r. bank, Maghāret er-Rahīb, which pours out at a height of 100 ft. from the face of a high cliff. Thence it flows in a northerly direction, with many windings, through a rocky sterile country to the bridge at Hermil where it takes a more easterly course to Ribleh. The banks here become low with a fertile plain on either side; on the r. the stream receives an affluent from Zerrā'. At Ribleh there is a much-frequented ford with a hard bottom, the water being 3 ft. deep in June. It has been suggested by Robinson and other travellers that the nature of the country westward of the river is such that the waters could be diverted from above Ribleh to the Buqeī'ah plain, (see p. 13), there to join the channel of the Nahr el Kebir. Up to this point the flow of water is considerably augmented by numerous springs in the channel and banks, and for this reason the large irrigation canals which take off from its upper reaches do not appear seriously to reduce the volume of water. For the most part vegetation is found only on the verge of the stream in the bottom of the chasm.

From the northern termination of the Anti-Lebanon range northwards for 20-25 miles where the hills begin to rise again, the country east of the river is a limitless fertile plain; to west are the north-eastern foothills of the Lebanon and the low beginnings of the Ansariyeh mountains. Beyond Ribleh the channel takes a north-westerly course, and later bears north, receiving an affluent on the l. near Tell Nebi Mindau, where there is a spring and small lake. It then bears north-east, spreading out to the lake of Homs, Bahret Qattīneh, which covers an area of about 6 by 3 miles. The lake is artificially formed, the stream being dammed by a leaky embankment of ancient construction 500 ft. long with a maximum height of 20 ft. across which a path leads. In the southern part of the lake there is a small island with a tell.

In 1888 a scheme for raising the level of the lake 25 ft. by

constructing a new dam below the present one, and so to collect the flood waters which now run to waste was considered. The volume of water in the river at this point is over 66,000,000 galls. per day. It was proposed to supply Homs by utilizing the power at the mill below the Tripoli-Homs chaussée, to pump 4,000 cub. m. a day on a 36-metre rise to a reservoir on the top of the citadel hill. The water, where it issues from the lake, is milky in appearance, but chemical analysis proved it to be very good after the fine clay had been withdrawn: the water, however, was not tested bacteriologically.

From the outlet of the lake the river flows north-east through a broad, shallow, and marshy depression, and is crossed by the railway bridge; farther upstream it is crossed by a bridge and causeway 500 yds. long carrying the Homs-Tripoli carriage-road. Between the lake and the bridges the river is 400 yds. wide and uncrossable. Opposite Homs the channel is 1 mile west of the town. Pressed out by the eastern trend of the mountain, its subsequent course lies in a deep chasm which at Restān is crossed by a bridge of 14 arches carrying the Aleppo chaussée. Taking a wide easterly bend from this point, the river skirts the eastern base of J. Arba'in, then, bearing round to south-west in a gorge 200-300 ft. deep, it issues between rugged mountains above Hama and flows through the town under several bridges. Here numerous *nā'ūrahs* (water wheels) are used for pumping the town supply and for irrigation.

About 12 miles beyond Hama the river passes close north of Qal'at es-Seijar, which stands on a plateau dominating the valley. Here it breaks through a rocky barrier into the low wide plain of Apamea, being crossed near the mouth of the gorge by a bridge of 10 arches. The river, now flowing westwards, passes close l. of Bahret el-Tereimsi, a lake 5-6 miles long, 2-3 miles wide, and never more than 6 ft. deep. Although much reduced in area in summer, this lake is never dry; it is surrounded on all sides by cane and willow brakes and the centre is covered with reeds providing cover for great numbers of wild fowl.

Bending northwards past the ford of Hūrāt, the great central depression is regained in the valley which, as far north as Jisr esh-Shughr, bears the name El-Ghāb, the channel lying close to the foot of the western range.¹ This extremely fertile valley is 6 miles wide at its southern end, narrowing towards the north. In the rainy season it is partially inundated, when communication between villages is by boat and, after the inundation subsides, many small lakes and marshes remain for a considerable part of the summer. There are, besides, permanent lakes scattered about the valley which, with the river, are rich in fish, large quantities of 'black' fish 5-8 ft. long being taken by harpoon and salted on the spot and sent all over Syria. The papyrus reed grows in the marshes and along the river banks, and provides cover for enormous numbers of water-fowl. On account of the prevalence of stagnant water the valley is unhealthy during certain seasons and, in the summer, mosquitoes and flies make it almost uninhabitable. The marshes and mud make El-Ghāb peculiarly favourable for the rearing of large numbers of buffaloes.

Numerous small affluents, especially from the hills to the east, feed the river which, keeping a northerly direction, now falls slowly and diminishes in volume owing to the marshes and irrigation canals. A little beyond Qal'at el-Mudhīq, which stands on an almost isolated rock a few miles r., the trunk receives a short affluent on the east coming from Bahret et-Tāqeh. This lake is formed by a large spring 'Ain et-Tāqeh; its width is never more than 3 miles, its length 4-5 miles, and its depth about 10 ft. The temperature of both spring and lake is warm, and this probably accounts for the enormous quantities of 'black' fish and carp.

¹ The W.O. map, 1915, shows the channel in the middle of the valley plain with a group of lakes and marshes in the region of Huwāsh lying on axes parallel with the river. Burckhardt (1910), however, both describes and maps the channel as being close to the foot of the western range, and the lakes, some distance to east, at right angles to the river. This is borne out by the descriptions of other authorities and confirmed by Kiepert's map.

A short distance farther north, on the r., is a small lake formed by 'Ain Huweith, and still farther north is a larger lake fed by 'Ain el-Huwāsh, on the southern shore of which stands Huwāsh, the chief village of El-Ghāb. At Jisr esh-Shughr, an important road centre, the river is crossed by a many-arched bridge. Here the valley is a fine broad prairie extending on the west to the foot of the Ansariyeh mountains. Beyond the bridge the river cuts more deeply into the marble formation of its bed and receives on the l. the large tributary N. el-Abyadh (see p. 424); 2-3 miles farther on, it enters a narrow and very deep ravine which terminates at Darqūsh. In this section, before reaching Hammām Sheikh 'Īsa, there is a ford and ferry. The hills on either side rise in terraces: J. el-'Ala to r. with its summit resembling a flat table and, on the l., the table-land of J. el-Quseir.

The middle course of the Orontes may be said to end at Jisr el-Maqsūr, near which place it receives a tributary, N. Bawardeh (see p. 424), on the l. The river then commences its wide westerly bend round the base of J. el-Quseir and enters the Antioch plain, El-'Amq, where it is again crossed by a bridge, Jisr el-Hadīd, over which the direct Antioch-Aleppo road passes. The water is here of a muddy colour caused by the erosion of the marly banks. About 5 miles below the bridge it receives its great tributary, the Kara Su, a navigable river flowing from the Lake of Antioch and bringing a greater volume of water than the Orontes itself (see *Handbook of Asia Minor*, vol. iv, pt. 2).

In its south-westerly course the river is obstructed by numerous fish weirs, winds among picturesque myrtle-clad hills and passes Antioch on the l. bank where it is crossed by a masonry bridge of four arches. It then follows a tortuous course over several cataracts, between steep wooded hills; the bed falls considerably and is in places obstructed by rocks. It receives on the r., first the Küchük Chai, and then the Büyük Kara Chai, the latter a considerable mountain stream whose banks are covered with oleanders, arbutus, and other shrubs. The river now enters the plain of Suweidiyeh,

winds through sandflats between low banks and finally passes over a difficult bar into the Bay of Antioch where it is about 200 yds. wide and 12 ft. deep. The current is strong, and after floods the river mouth frequently changes its position. Between Antioch and the sea the river falls 300 ft. in a course of 21 miles, or crowfly distance of only $13\frac{1}{2}$ miles. The total course of the river is about 170 miles. It is navigable in winter for 3 miles from the sea for vessels of 100 tons and, if the fish weirs and rocks were removed from its bed, it could be made navigable for track-boats as far as Antioch. There is a cable-ferry at the mouth and others at points $1\frac{1}{2}$, 5, $8\frac{3}{4}$, and $12\frac{1}{4}$ miles upstream.

Floods depend almost entirely upon the rains which commence towards the beginning of November, after which there is a gradual and tolerably regular increase until the snow falls early in January. The water afterwards diminishes until the melting of the snow in April; in May the water is at its highest, and the subsequent fall continues till November. At times the spates are sudden and considerable, but in general, owing to the inundations over the lake basins and marshes of El-Ghāb, the changes of level are gradual and regular throughout the year. The water of the river is utilized for irrigation only to a limited extent.

Nahr Lītāni (N. el-Qāsimīyeh).

This is the third largest river in Syria. The true source is on the low watershed running westward from Ba'albek near the mound Tell Barada, in a muddy oval pool from which in summer there is only an almost imperceptible trickle. One of the most remote affluents has its source in a large spring at the base of the tell on which stands the village of Ma'ra-būn; this stream flows southwards through a single-arched bridge, Jisr er-Rummāneh, beyond which it turns westwards into W. Yafūfeh, receiving an affluent from a large spring in W. Sarghāya. In this latter wādi, about 1 mile S. of the village of Sarghāya and lying across a plain 1 mile in width, is the watershed separating the waters of Yafūfeh

from the Barada. Nahr Yafūfeh breaks north-westward in a wild and precipitous ravine covered with oaks, planes, and wild rose bushes, entering the plain a short distance west of the village of Ma'sa. After traversing the plain it joins the natural channel of the Lītāni which comes down from the north. In its course south-westward, the trunk receives its chief right-bank affluent, the Nahr el-Bardāni, a perennial stream taking its rise in J. Sannīn and flowing through Zahleh. Other important sources of the Lītāni are the large springs of 'Anjar and Shemsīn in the lower slopes of Anti-Lebanon south-east of Bar Elyās. These waters join the parent stream some 5 miles below the junction of the Bardāni.

The main stream now flows through the plain, and beyond Jubb Jenīn follows a constantly narrowing valley to Jisr Qar'ūn; soon afterwards it is considerably augmented on the r. by an affluent from the springs of Meshghareh. From here the stream commences its struggle to find a channel through the encroaching base of the Lebanon on the one hand and the limestone range of J. edh-Dhahr on the other. In its course it flows through a precipitous gorge or chasm varying in depth to a maximum of 1,500 ft. It falls rapidly with many windings over a rocky and confined bed, forming many rapids and becoming at its most constricted points a deep and whirling torrent. Between Yahmūr and Jisr Burghūz its banks are precipitous, varying from 100 to 1,000 ft. high; for a short distance below Burghūz they become lower and the valley widens; thence to Belāt the chasm, varying in depth from 800 to 1,200 ft., takes a tolerably straight course south-west by south, its steep sides being covered with shrubs. At a spot below Belāt the stream runs for 80 yds. through a strait generally 6–12 ft. wide but, at one point, not more than 3 ft. wide. Opposite Jedeideh it flows in an open valley and is fordable in summer. A little south of Jisr Khardeli there is also a summer ford.

Beyond Qal'at esh-Sheqīf the river turns abruptly west, and follows the southern base of the Lebanon foothills to the sea. This western section falls over a rocky bed with many rapids, between steep banks covered with shrubs. At Jisr Qa'qa'īyeh

the current is very rapid and the river, here about 5 ft. deep (September), flows over a smooth limestone bed with low muddy banks. About $1\frac{1}{2}$ miles from the coast it widens out into a small valley basin, across the lower part of which is a ford which is dangerous except during the dry season; below this the only crossing is by the bridge $\frac{1}{4}$ mile from the sea. The lower and middle reaches and sometimes the whole of this western stretch are named Nahr Qāsimīyeh.

Passage through the gorge is for the most part impracticable, the river often filling up the entire bed; paths down to the water are steep and difficult. Except at a few places, the Litāni can only be crossed at the bridges: Jisr el-Qar'ūn, El-Kuweh (natural bridge near Yahmūr), Jisr Burghūz, Jisr Khardeli, Jisr Qa'qa'iyeh, and the narrow bridge near its mouth. The chasm in which the river flows often becomes invisible at a short distance from its brink, particularly in parts between Belāt and Burghūz where, on account of the corresponding lateral undulation on either side, the country appears to be unbroken. The river enters the sea $5\frac{1}{2}$ miles north of Tyre after a total course of about 100 miles. The minimum volume of water at its mouth is 50,000,000 galls. per 24 hrs. During summer there is a bank of sand across its mouth.

All the waters at the mouth were the property of the State, and in 1891 a concession was granted to a native syndicate to dam the stream about 8 miles from the sea to irrigate the coastal plain from Tyre to Sidon. Plans and estimates were made but, although the scheme was practicable and promised to be remunerative, it fell through and the water-power of the river remains practically unutilized.

Streams of the Western Slopes of Lebanon

Nahr ez-Zaharāni.—Its most remote sources are around Kefr Hūneh, a village on the southern road from Jezzīn to Hāsbeaya. Neba' et-Tāsi is said to be the chief source, and from it the ancient water-supply to Sidon was taken by an aqueduct, considerable remains of which still exist. Thence the bed breaks down through the north-western base of

J. Rihān, cleaving the mountain to its base in one of the deepest and wildest gorges of the Lebanon; the mountains on either side rise 2,000–3,000 ft. above the stream, those on the northern side being considerably the higher. The chasm descends SW. to a point where the stream turns round the precipitous bastion of southern Rihān into a straight valley, W. Jermaq, running due S. along the western face of the mountain. After flowing down this valley for a short distance, the stream turns suddenly west, breaking through the low ridge by a narrow ravine. The watershed of W. Jermaq is quite close to the bend of the stream, and on its southern side there are springs and a stream flowing southward to the Lītāni. According to Dr. de Forest, by the removal of about 30 ft. of earth from the low swell which forms this watershed, the Zāhirāni could be conducted into the Lītāni near Jisr Khardeli. In its subsequent course the volume of water is not increased and the stream enters the sea about 6 miles S. of Saida.

Nahr Awwali.—The sources are the springs of ‘Ain Bārūq, a short distance above the town of Bārūq. The stream, here bearing the name N. Bārūq, follows a general course south by west, and is fed by other springs during its descent in a fertile valley W. of the important village of Mukhtāra near where it receives an affluent from Khureibeh on l. Continuing northward for a time, then turning westward, it receives the N. Jezzīn coming from south. This affluent falls about 250 ft. over a precipice near Jezzīn and descends by numerous cascades through a gorge. The hills west of this gorge are thickly wooded and less steep than those on the east which are terraced on the lower slopes but culminate in rocky headlands. On one of these rocks are the ruins of the castle of Fakhr ed-Dīn. The ridge, J. Rihān, terminates towards the north in a lofty bluff which occupies the angle between the streams below their junction. The trunk, now named N. Awwali, flows through a fine alluvial tract to Jūn and, at various points in this part of its course, the water is used for purposes of irrigation and mill power.

Finally, having changed direction more to west, it passes through a rocky gorge about 4 miles from the sea. Here a brushwood weir raises the water to the canal which supplies Sidon and irrigates its gardens. Below the canal head there are four water-mills which claim the right to all water remaining after filling the canal. In its course through the Sidon plain, the stream is broad and rapid and runs in a deep channel through a district full of mulberry and fruit trees. The coast road crosses the stream by a fine single-arched bridge, about $\frac{3}{4}$ mile from the sea, and there is a dangerous ford on the bar at the mouth 2 miles N. of Sidon.

Nahr ed-Dāmūr.—This stream is called N. es-Sāfa in its upper reaches, and is fed by two springs running from the foot of J. Bārūq : one a little above, where the carriage-road crosses, and the other some distance up the mountain side under 'Ain Zahalteh. The greater part of the water of the upper spring irrigates the Beit ed-Dīn valley. The *Dāmūr* irrigates the narrow fringe of land on either bank and then finds its way to the sea through the usual rocky gorge. Before reaching the sea the waters are diverted to irrigate the coastal plain under the village of Dāmūr, famous for its mulberry plantation and silk culture. Below Dāmūr the stream has a broad bed, but in summer there is little water on account of irrigation. Close to its mouth the river is crossed by what was originally a suspension bridge for pack animals, but was afterwards converted into a suspended girder bridge for light wheeled traffic. In 1910 the bridge, just wide enough for one carriage, was partially wrecked by the great floods of that winter, but in 1913 was again passable. The stream reaches the sea a few miles north of Ras Dāmūr, and there is a ford at its mouth which is dangerous even in summer.

Nahr Beirut is formed by the union of two wādis : one draining the south-western slopes of J. Sannīn and the other draining the Hammāna valley on the western slopes of J. Kenīseh ; these two wādis unite below the hog's back of Ras el-Meten. There are no springs of any importance in the northern wādi, the bed of which is dry all the summer

and autumn after the melting of the snows; but the torrent is subject to very heavy spates as the slopes are barren and rocky. The Hammāna basin is well watered by several large springs, but the bed, for three or four miles below Hammāna, is quite dry during the irrigation season. Two miles farther down, below the village of Deir el-Harf, a large spring issues from the l. bank a few yards above the valley bed; it is utilized for mills and to irrigate a small area. The water found in the lower reaches is from a large spring near the bottom of the valley under Deir el-Qal'ah, and is all utilized for irrigating the plain between the foothills and the town of Beirut. Below this the stream is practically dry during the summer and autumn months. In the plain there are two bridges across the stream. Rustem Pasha bridge, the upper one, of one high semicircular span and two culverts, is a handsome masonry work but difficult for heavy traffic owing to the steep approach from the left bank which is about 30 ft. lower than the right. It connects the Damascus chaussée with the road system of the Meten-Lebanon. The lower bridge, about 500 yds. from the sea, carries the Beirut-Tripoli road; it is a long and irregular masonry structure of five spans and just wide enough for two lines of traffic. Except during spates, the bed is fordable both below and above this bridge. A sandbank lies off the mouth of the river which reaches the sea $1\frac{1}{2}$ mile north of Beirut.

Nahr el-Mōt.—The Nahr el-Mōt, 'river of death', so-called because of the stagnant and unhealthy tract near its mouth, is a torrent draining the slope below Beit Meri and is subject to heavy spates during rainstorms, but is dry at other times. It is crossed by three bridges. The upper, $1\frac{1}{2}$ mile from the sea, carrying the Rūmi road, is of the ordinary masonry type. About 400 yds. from the sea is a 3-arch stone bridge carrying the Beirut-Tripoli road and, close to the sea, is the lattice girder bridge carrying the Tramways Libanais. The mouth of the stream is 3 miles north of Beirut.

Nahr Antelyās.—This stream drains the slopes below Behannis and Brummāna. The upper valley contains no

perennial springs, but about a mile from the sea, a large spring issues from the bed of the valley and is utilized for irrigating the plain as far as the N. el-Mōt. The stream is crossed by a high arched bridge, with bad approaches, carrying the Beirut-Tripoli road and, at the village of Antelyās, close to the sea, is the two-span lattice girder bridge of the Tramways Libanais. Below the bridge the stream is generally fordable; it falls into St. George's Bay 5 miles north of Beirut.

Nahr el-Kelb.—The Nahr el-Kelb, or Dog river, is one of the largest streams on this coast. The basin is formed by the union of four wādis descending from the slopes of J. Sannīn. That to north is W. es-Salīb, followed by W. el-Leben, then two others which bear torrents only and are practically dry after the melting of the snows. At the head of W. el-Leben is the source, Neba' el-Leben, which issues in considerable volume from the foot of a ridge and is almost entirely utilized for irrigation. About a mile below this source, the rapidly descending chasm is spanned by a natural bridge of 125 ft. span and about 100 ft. wide at the narrowest point. The source, Neba' el-'Asal, issues high up on the mountain spur connecting J. Sannīn with J. Muneiterah, and is about 3 miles north-east of Neba' el-Leben. Another large spring, Neba' Maghāreh, issues from below the village of Herajīl. The stream joins that from W. el-Leben at W. Shebrūh and thus forms the N. es-Salīb which is the northern branch of the Kelb. W. es-Salīb has a narrow rocky bed with steep sides rising in places as high as 1,500 ft. and clothed with stunted oaks. For the most part there is room only for the stream but, where the bottom widens a little, there are patches of cultivation and houses here and there. In the neighbourhood of the village of Meirūba there are water-mills and irrigation, but, before reaching the village of Feitrūn, the whole of the waters have soaked away in the bed and, from this point to the Grottoes of Je'īta, about $5\frac{1}{2}$ miles from the sea, the river bed is dry from July to November. From the Grottoes of Je'īta, issue the true sources of the N. el-Kelb, the average autumn minimum flow at the point of issue being

34,000,000 gallons per 24 hrs. At $3\frac{1}{2}$ miles from the sea is the intake of the Watta Canal which runs along the r. bank of the river towards the mouth, when it turns north and irrigates all the low lands lying between the river and the town of Jūneh; it has a capacity of about 9,000,000 gallons per 24 hrs. At $3\frac{1}{4}$ miles from the sea is the intake of the Beirut Waterworks Canal with a capacity of 25,000,000 gallons per 24 hrs.; below this point any water found in the bed after the end of July is waste from the Watta Canal. The waterworks canal runs along the r. bank for 300 yds. at a lower level than the Watta Canal, and then crosses to the l. bank by a ferro-concrete cantilever aqueduct of 100-ft. span. It follows the l. bank for 2,000 yds. and then the water enters a tunnel 1,100 yds. long, finally reaching the pumping station. Between Je'īta and the sea there are seven mills, the lowest of which takes its power from the Watta Canal and the remainder from the river.

The N. el-Kelb is crossed by seven bridges in all. At the mouth is the lattice girder bridge of the Tramways Libanais of three spans of about 60 ft. each. About 100 yds. upstream is the masonry bridge of three arches carrying the Beirut-Tripoli road. About $\frac{1}{4}$ mile higher up is the old bridge of Amīr Bāshir for pack traffic. The foundations of this latter are good, for it has resisted spates which have washed away every other bridge from time to time. At $3\frac{1}{2}$ miles from the mouth are the two bridges of the waterworks: a suspension foot-bridge, part iron and part timber, capable of carrying 40 tons of distributed load over its whole length and, a few yards above the intake of the Watta Canal a bridge of three spans constructed by Rustem Pasha to connect the mule tracks on both sides of the valley, and to give access to two mills. About $\frac{1}{2}$ mile higher up is the Mār Elyās bridge, of one large high span with a steep approach on the l. bank, which also serves to connect mule tracks and mills. The river falls into the sea 8 miles north of Beirut.

The following facts are of interest. The manager of the Beirut Waterworks is of opinion that Je'īta is not a spring

but rather a discharge of all the underground water collected from the N. es-Salib and the other valleys of the catchment area, through a large geological fault in the vicinity. In 1911 a concession was obtained to irrigate certain villages of the Kesrawān kaza by trapping all the water of the N. es-Salib below the tail race of the mills mentioned above. The Beirut Waterworks opposed the scheme on the ground they would be deprived thereby of a considerable portion of their water-power and, by order of the Porte, a commission was appointed to make experiments to test this contention. In November 1913, therefore, the water of the N. es-Salib was coloured by a green dye, with the result that the waters issuing from Je'ita were similarly coloured. The experiment was remarkable for the fact that, although the valley of the N. es-Salib is 3,000 ft. higher than Je'ita and the distance above ground between the two places less than 10 miles, the dyed water took six days to make its appearance. As a large quantity of dye was used, the green colour was visible in the laboratory of the American College of Beirut for three days after its first appearance there, a fact which seems to indicate the existence of immense underground reservoirs.

Nahr Ibrāhīm.—This stream rises on the west flank of J. Muneiterah near Afqeh and 'Āqūra. The upper part of the wādi is fertile, but the chief part of the course of the stream is through a precipitous gorge which, about 4 miles from the sea, opens out into an irrigated valley where there are mills. The total fall of the stream is about 3,000 ft. and the minimum flow not less than 40,000,000 gallons per 24 hrs., but nearly all this water with its power goes to waste. There have been many projects for utilizing this water, but none had materialized up to 1914. The mouth of the river is peculiar in having generally a shingle bar across it, the water forming a lagoon and escaping into the sea at a rocky promontory 500 yds. to the south. The carriage-road crosses the river near the mouth by a modern lattice girder bridge of one span and, a few hundred yards above this, is the old and picturesque mule bridge that was the principal crossing before the carriage-

road was made. The stream reaches the sea $5\frac{3}{4}$ miles south of Jubeil.

Nahr Qadīsha, or *Nahr Abu 'Ali*.—The streams from 'Ain en-Neba', 'Ain el-Baqarah, and Neba' Mār Serkīs, all in the basin containing the Cedars, tumble in cascades to the great chasm of Qadīsha. There are, besides, several large springs in Besherreh itself and also above Hasrūn. Above the large village of Besherreh is a waterfall calculated to furnish 900 horse-power even in the dry season. The Qadīsha gorge is formed by the junction of three branches which, about 2 miles east of Besherreh, unite in a broad basin with steep sides about 1,000 ft. high, the bottom and southern end of which are cultivated, but the eastern end, where the three arms enter, is rugged and barren. At Hasrūn the gorge is so narrow that the inhabitants can converse with the people of Hadshīt on the opposite side, although it is a two hours' journey by road between the two places. It is perhaps the wildest and grandest of all the gorges of Lebanon; its sides are precipitous and lofty and there is rich cultivation and luxuriant growth on every spot where soil can lie. Villages are perched picturesquely among the rocks, and convents are found in remote nooks or in the bed of the valley. The chasm, which in its upper reaches follows a generally westerly direction, gradually trends north as it approaches the plain. Five or six miles from the sea, the river, now called N. Abu 'Ali, is joined on the r., near Zgharta, by N. Rashein, which has its source in a very large spring. This latter stream supplies the town of Tripoli with water by gravitation; the lower part of the canal conveying the water is ancient, probably Roman, and its capacity is 4,000,000 galls. per 24 hrs. The supply is much contaminated by drainage from fields and cattle and, during autumn, by the waste from olive presses. Besides these defects, the water during heavy freshets is also heavily charged with red mud so that cisterns often become filled with silt.

Below Zgharta the main stream traverses fertile country celebrated for its oranges and olives. After passing through

the town of Tripoli, at the north end of which it is crossed by a bridge carrying the Homs carriage-road, it takes a north-westerly direction to the sea $2\frac{1}{2}$ miles distant.

Nahr el-Bārid.—The sources of this river are in the northern slopes of Lebanon at the base of J. 'Akkār. Above the village of Sir there is a spring, Neba' el-Mas-hūr, which is very copious in spring and early summer from the percolation of melted snow. The main channel runs north-west through a gorge forming the southern boundary of the district of 'Akkār and, a few miles from the coast, the stream in July is deep and rapid with a stony bottom, and is fordable with difficulty. Before falling into the sea 9 miles north of Tripoli, it passes under a 3-arched masonry bridge which carries the Tripoli-Homs road; here it is about 50 yds. wide and 2 ft. deep and has a rapid current.

Nahr 'Akkār.—This stream takes its name from the district of Jurd 'Akkār where it rises and its sources consist of numerous rivulets which tumble down from the rugged mountains and unite below the castle of 'Akkār. The stream issues from the hills into the plain $2\frac{1}{2}$ miles east of the bridge of three arches carrying the Homs road. A large canal is here carried off to irrigate the plain and, from this point, the stream is also known as N. Khureibeh. It empties into the bay of 'Akkār. About 6 miles from the sea it is crossed by a bridge bearing the Tripoli-Homs railway, and here the stream is 50 ft. wide and very deep, with a gravelly bed and clay banks. Near its mouth it is spanned by an old bridge carrying the coast road.

Nahr el-Kebīr.—This is the largest of the streams which intersect the coastal plain of 'Akkār. Its most remote source is in W. Khālid, which runs irregularly northwards along the high northern slopes of the Lebanon range and then trends westward in its descent to the Buqe'ah plain, between the Lebanon and Ansariyeh mountains. The other main feeder of the river, W. Nāsir, runs down from the trap mountains of the Ansariyeh north-east of Qal'at el-Husn, but contains no permanent stream. From the junction to the sea, the

channel may be taken as marking the boundary between the Lebanon and Ansariyeh regions. W. Khālid for the most part has steep sides with occasional tracts of broad fertile land, and even in June there is a fair amount of water in its bed. Near its mouth, W. Khālid is crossed by the bridge carrying the Tripoli-Homs railway and, farther down, by Jisr el-Ahmar, a good masonry structure of four arches carrying the carriage-road. The stream here, in April, is about 40 ft. wide and 2 ft. deep, and has a rapid current over a shingly bed; the banks, 15-20 ft. deep, are of gravel and clay. El-Buqei'ah, which is watered by the Khālid, is a fine fertile plain, oval in shape, 10-12 miles in length and about 6 miles broad. In it there are several springs and marshes, and large herds of cattle and buffaloes are reared. At the western end of the plain, where the river is about 70 yds. broad and 2 ft. deep (in April), it is spanned by the Jisr el-Aswad, of 4 arches, carrying the Homs road. It is also fordable above the bridge. About 11 miles lower down the river is spanned by the Jisr el-Abyadh, also known as Jisr el-Jedīd, of one arch, carrying the Homs road. The channel here is broad and deep, with no great quantity of water in June; the banks are of clay, and there is a ford $\frac{1}{2}$ mile upstream. Below this bridge the banks become still deeper and the river now enters a fertile plain receiving the affluents N. Tell el-Khalifeh and N. 'Arūs. Lastly it receives a stream from Neba' el-Fawwār, an intermittent spring which gushes up copiously at very irregular intervals. Winding through the rich plain, the N. el-Kebīr enters the sea 20 miles north of Tripoli, being crossed a mile from its mouth by a five-arch bridge carrying the coast road.

Streams of the Eastern Slopes of Anti-Lebanon

With the probable exception of the Nahr Ma'raba, there are only two important streams in this region, the Barada and the 'Awaj, both of which flow eastward through the plain to the desert lakes. The N. el-'Awaj irrigates some 60 sq. miles of land and supports a population of about 10,000. Much of

its upper supply runs to waste, but with a more complete system of irrigation the area of its usefulness could be greatly extended. The Barada, besides being of much greater volume and more adaptable to irrigation, is furnished with an elaborate system of canals which assure a generous supply of water to some 130 sq. miles of the most productive land in Syria. It is besides utilized for electric power and water supply to the city of Damascus. Of all the rivers of Syria, the Barada perhaps lends itself most effectively to irrigation.

Nahr el-'Awaj is formed by the junction of two streams near Sa'sa' on the eastern slopes of Hermon. One of these comes from above Beit Jenn, through which village it flows in a wādi with lofty sides of naked white rock, the stream being fringed with poplar, walnut, and apricot trees. Below the village it is augmented by 'Ain Beit Jenn, a large spring on the r. bank, whence it continues in a deep channel to its confluence with the other and larger branch, the 'Arni. This latter stream is formed by several small springs in a gorge which penetrates to the centre of Hermon and flows in a deep channel past 'Arni, and Kefr Hawar and thence by a winding course to the confluence near Sa'sa'. Close to their junction the two streams are crossed by the new carriage-road from Jisr Banāt Ya'qūb to Damascus.

The trunk, now named N. el-'Awaj or N. Zābirāni, flows for about 6 miles in a north-easterly direction, having on the r. an undulating plain thickly strewn with basalt boulders, and on the l. a level tract where limestone takes the place of volcanic rock. The whole district is forbidding and monotonous. After turning east the stream flows in a tortuous and very deep channel to Kisweh, passing on the l. the low range of J. el-Aswad, between which and the stream there is a fertile plain $\frac{1}{4}$ mile wide. In this part of its course it is crossed at Kisweh by the Damascus road. Continuing along the valley between J. el-Aswad and J. Māni', the stream is crossed by the Hejaz railway and, after sweeping round the last high peaks of Māni', winds through the plain and enters the lake, Bahret el-Hijāneh, near the village of Hijāneh. In summer

it is often dry below Kisweh. A large canal is carried to Mu'adhdhamīyeh, which then turns $\frac{1}{2}$ mile to E. and meets another from the Barada. Above Jūn a large canal is taken off from the l. bank to irrigate the fields of that and other villages. Another takes off on the r. bank at Kisweh, and waters the gardens of 'Adaliyeh and Huryilleh. The 'Awaj flows in a deep bed of basalt and the lower part of its course runs parallel with the calcareous plain of Damascus and marks the commencement of the basaltic region to the south. The province in which its sources are found is named Iqlīm el-Bellān, and comprises the whole eastern slopes of Hermon with a section of the plain nearly to Sa'sa'. The whole valley of the river from Iqlīm el-Bellān to the lake is called W. el-'Ajam.

Nahr Barada.—This is one of the most important and most fully utilized river in Syria. Besides irrigating the great and fertile plain of Damascus, its waters provide the household water-supply, and produce the electric power and light for that city. Above its source there are two copious springs, the waters of which are diverted from the channel: 'Ain Hawar, which issues about 3 miles north-east of the plain of Zebdāni and flows through a narrow and fertile valley to the village of Zebdāni where it is entirely used for irrigation; and 'Ain el-Funduq, a smaller spring in the north-east corner of the plain, which, also, is entirely used for irrigation. The actual source of the Barada is found in a small lake 300 yds. long by 50 yds. wide, from which the stream descends through the elevated plain of Zebdāni. The plain is 8 miles long from north to south, and about 3 miles wide for half that distance, beyond which it begins to narrow down until at its southern end it is only about $\frac{1}{2}$ mile wide. Here the Beirut-Damascus railway line which, to this point, runs along the l. bank, crosses over to the r. bank of the river. Near by, at Tekkiyeh, there is the electric power station of the Belgian company which supplies Damascus with a force of 1,200 H.P. from the water-falls. Receiving the winter torrents from W. el-Qarn on the r., the channel bends eastwards in a narrow precipitous chasm. Then, trending more southward, the

gorge opens out, giving room for strips of luxuriant gardens on either side of the stream. Below Sūq Wādi Barada, where the gorge breaks through the J. esh-Sharqi the main chain of Anti-Lebanon, there is a difficult ford and a modern bridge, beyond which the stream takes a south-easterly course to Deir Qānūn. It then bends more to the east towards Fījeh, all the while rushing over boulders in a succession of cascades, the banks being lined with luxuriant growth.

On the l. bank, about 70 yds. from the channel, 'Ain Fījeh bursts forth from fissures in a rocky cave, with such force and volume as to form at once a stream 30 ft. wide by 3 ft. deep, and so rapid as to be unfordable. This is the main source of the Barada, and contributes two-thirds of its waters. The supply of pure water to Damascus from 'Ain Fījeh was completed in 1909, the main pipe serving a reservoir at Sālihīyeh with 4,000 cub. metres per day by which some 250 public fountains in the city are supplied, as well as water for private use. At the spring the valley is about 200 yds. wide and bounded by cliffs 1,000 ft. high. Continuing in this chasm in a generally south-easterly direction, the river, before it reaches the plain, is held up by a succession of dams built to feed the canals which, with the Barada itself, furnish the main supply for the irrigation of the Damascus plain. At Rubweh in the mouth of the valley, there are five canals to r. of the road to Damascus, and two to l. When the river emerges into the plain it takes an eastward bend and, after passing along the north wall of the city, traverses the great plain, finally emptying by two channels into the desert lake, Bahret el-Qibliyeh. The Beirut-Damascus railway line runs more or less parallel with the Barada throughout its course to Damascus.

Nahr Ma'raba.—The most remote source of this stream bursts from the foot of a cliff nearly 2,000 ft. high in the wild and picturesque upper W. Helbūn which intersects the third chain of Anti-Lebanon. The stream here irrigates many orchards and gardens and, flowing in a gorge with overhanging crags, is supplemented by a stream from 'Ain Sāhib, the waters

of which are utilized for turning a mill and for irrigation. Thence it runs through a narrow neck into a deep gorge and then bursts through a fissure in a cliff into a wide plain surrounded by steep slopes. This basin is covered with luxuriant fruit gardens and, after winding through it, the stream enters another wild gorge in which it is carried across the undulating plain of Es-Sahra, the little valleys of which are filled with orchards of figs. Continuing in a general south-easterly direction, the channel cuts through several ridges and is then joined on the l. by N. Menīn, below the village of Ma'raba, perched on a rocky acclivity overlooking the valley. N. Menīn rises at the edge of a vast amphitheatre of mountains forming a basin from which ravines divided by lofty ridges of naked rock radiate in all directions. In the centre of the basin is the village of Menīn, around the southern side of which the stream sweeps through a fringe of poplars and other trees. Thence the channel lies in a defile which opens out into a valley of great depth, the bed being covered with luxuriant foliage and the rocky sides rising up naked, smooth, and white. Passing the village of Et-Tell, the torrent plunges down a rocky bed fringed with walnut and poplar-trees to its junction with N. Helbūn.

The trunk, now a fairly large stream named N. Ma'raba, flows through open country with swelling hills intersected by wooded valleys. It then breaks through by a chasm at the north-eastern end of J. Qasyūn and runs in a tortuous and rapidly falling bed between grey limestone rocks piled up in huge masses. After watering the village and luxuriant gardens of Berzeh, the stream emerges upon the Damascus plain where it is entirely utilized for irrigation. The course of the river from Helbūn to Berzeh is roughly parallel with the Barada.

Irrigation Systems of the Damascus Plain

Besides the Barada and the Ma'raba, there are several small perennial streams falling to the plain, many springs in the plain itself, and extensive systems of canalization.

1. *The Barada Canals.*—The canals taking off from the r. bank of the river, are as follows :

The Diarāni takes off above the village of Dummar and supplies a large mill there ; in many places it is carried through deep tunnels in the rock. On account of leakage, its original capacity is much reduced, and it now contains a comparatively small quantity of water. As it turns out towards the plain in the direction of the village of Dāreyya, which it was apparently meant to supply, it contains little water and is much overgrown by reeds.

The Mezzāweh is about 10 ft. lower, and contains a somewhat larger volume of water than the above. In places it passes through rock tunnels, but is chiefly in the open and is good deal overgrown with reeds. It goes to the village of Mezzeh and the gardens beyond.

The Qanawāt leaves the Barada a good deal farther down, having its 'take off' close to the railway signal-box, where the road crosses the railway. It contains much more water than the above mentioned canals, and passes east of the barracks, running parallel with the railway in a covered channel. It passes into Damascus by a fine Roman aqueduct, and supplies water to a large section of the city.

The Bāniyās is also a large and important canal coming from near the mouth of W. Barada and passing east of the Merj. At several places it is carried through rock tunnels and enters the city about half-way between the Qanawāt and the Barada canal ; it supplies another large area of the city.

The Barada is the main canal and would be much smaller but for the fact that there is leakage into it from the canals on either side. It passes from Rubweh through some gardens and emerges at the Merj, a large open meadow, where it runs beside the Beirut road until it reaches the Serai square. Here it passes under a bridge and emerges a little farther on to run along the moat of the north city wall until it reaches Bāb Tūma. Thence it winds among the gardens to the Bahret el-Qibliyeh.

The two remaining canals take off from the l. bank ; they

are both large and of elaborate construction, being in many places built up of masonry to a great height against the steep cliffs.

The Yezīd, the larger and higher canal, leaves the Barada near Hāmeh, and on reaching Rubweh makes a wide sweep northwards, almost skirting the foot of the northern hills. It supplies the suburb of Sālīhiyeh and passes the villages of Haresteh and Dūma.

The Tōra takes off not far up the valley. At Rubweh it runs through a tunnel in an obstructing ridge and, on reaching the open, works north-westward, making a greater sweep around the northern flank of the city. It is shallow with muddy banks overhung with trees, and passes chiefly through gardens, but supplies also the northern suburbs outside the city walls.

2. *Other Streams and Springs in the Plain.*—Various other streams enter the plain from the ravines on the west and north, but they are all speedily absorbed. A small stream, Nahr Barbar, flows down from the wādi in which the village of Qal'at el-Jendel is situated. The fine gardens and fields around the large village of Qatana are abundantly watered by a stream from a spring 1 mile west, but it is completely exhausted after a course of 3 miles. A third comes from a fine spring near Hafeyyer in the southern Sahra and passes by a deep gorge to the plain. A fourth enters the north-east part of the plain coming from a spring at Raheibeh in the plain of Jerūd and is called N. el-Mūkabrīt (sulphurous river), although the water is sweet. A fine stream passes through Maqsūrah and waters the plain below; in summer its water is wholly absorbed but, in winter, it falls into Bahret esh-Sharqīyeh.

There are likewise occasional springs in the plain itself, such as one $\frac{3}{4}$ mile west of Qatana. Another, 'Ain el-Quseir, near the base of the northern hills about 2 miles north-east of Dūma, has three sources close together and the stream waters a large tract, the surplus water falling into the Tōra canal. The largest fountain in the plain is 'Ain

Harūsh, about 5 miles south-east by east of Damascus, forming a fine stream which flows eastwards to be used up in watering five large villages with their fields and gardens.

3. *Subterranean Canals*.—A system of water supply, called *karez* or *felūj*, is extensively practised in those parts of the Damascus plain which cannot be reached by open canals. This system, operative only on a slope, is as follows. A well or pit is dug and water is found usually at a depth of 20–30 ft.; then, following down the slope, other pits of gradually decreasing depths are dug at intervals of about 100 ft.; all are then connected at the bottom by tunnels until at length the accumulated waters run out to the surface. The courses of these subterranean canals may be traced in the plain by the long lines of mounds of earth around the pit heads even from near the Meidān. On the Hajj road, about 3 miles from Damascus, there is a small canal in a deep artificial channel made on this system. About $\frac{3}{4}$ mile farther on is one similar called N. Sabīneh and, $\frac{1}{2}$ mile beyond, near the foot of J. el-Aswad, is one called N. el-Bardi, the head of the canal being $\frac{1}{4}$ mile beyond Ashrafiyeh. In the north-eastern part of the plain beyond Maqsūrah there are two others. Many of these subterranean canals are now choked up and are no longer in use.

The Desert Lakes

Lying on the verge of the desert east of the Damascus plain, there is a group of lakes and marshes which receives the surplus waters of the plain. The principal of these is Bahret el-Qibliyeh, which receives the waters of the Barada and, in summer, covers an area of about 35 square miles. North-east of this lake is the slightly smaller Bahret esh-Sharqīyeh. The two lie about 1 mile apart and are separated by high ground, across which there runs a small wādi. Certain parts of the shore are clearly defined by high ground which rises well above the water-level while, on other parts, marshes spread out indefinitely. Both lakes and marshes are covered with tall reeds 12–20 ft. high, only isolated patches

of water being visible. They are inhabited by great numbers and varieties of water-fowl and the reeds provide cover for herds of wild swine.

About 5 miles south of Bahret el-Qibliyeh is Bahret el-Hijāneh, a smaller lake having as its principal feeder the N. el-'Awaj. This lake is also hidden by reeds; it covers an area of about 22 square miles in winter, but is sometimes dry in summer. East of these lakes is the desert.

II. JEBEL ANSARIYEH

The main watershed of J. Ansariyeh proper lies generally N. and S. close over the Orontes valley. The eastern watercourses are consequently short and unimportant, while the western courses are comparatively long, carrying, in some cases, a considerable body of water. The section of the range north of Lādiqīyeh, included under this head, is structurally quite distinct from the mountains to the south. Here the watershed is on the W., and the chief watercourses fall either eastward to the Orontes or southward to the Kebīr. Generally the watercourses lie in deep ravines with a rapid fall over rocky beds to the coastal plain on the W. or, on the E., to the Orontes which flows close to the mountain base. These ravines form a serious obstacle to communications. Little or no effort has been made to utilize the water in this region for irrigation. During summer the streams are much reduced and in many cases become dry, but during the rains they are raging torrents.

Streams of the Western Slopes

The principal streams are grouped at the southern and northern extremities of J. Ansariyeh proper. A considerable stretch between the two (approximately between Tartūs and Jebelch) is more scantily watered by small and comparatively unimportant streams. Taking them from S. to N. the main streams are as follows:

Nahr el-Abrash rises high up in the south-western slopes

and passes close south of Sāfita, falling in a south-westerly direction to the plain. There is no information as to the volume of water in summer, but during spring the stream is much swollen, and is fordable in the plain with great difficulty. It falls into the sea $3\frac{1}{2}$ miles north of the N. el-Kebīr.

Nahr Ghamkeh rises high up in the mountains and flows in a wādi N. of Sāfita, where it is a considerable stream; after receiving several affluents on the r. it falls into the sea $1\frac{1}{2}$ miles S. of Tartūs.

Wādi 'Ayūn lies $\frac{1}{2}$ mile N. of Tartūs and has several springs, the chief of which is 'Ain Hārūn. In the sea, a few yards from the shore, is a very strong spring, 'Ain Ibrāhīm, from which, in calm weather, fresh water is drawn by the Ruwad boatmen.

Nahr es-Sinn.—This is a short but very considerable stream which has its source in a large spring issuing from under a spur north of Marqab. It may, however, be the joint product of the many springs which are said to abound in the hills in this district. At its reputed source are the 'tombs of the forty martyrs', a place of pilgrimage, where the waters are taken as a cure for numerous maladies. The stream, of beautifully clear water, is very deep and rapid, and is said to be unfordable throughout. The name *Nahr el-Milk* is sometimes given to the stream from the tribe of sedentary Arabs who occupy its banks. It is spanned by a bridge near the coast and runs into the sea on the north side of Ras Beledēh.

Nahr Snarubar rises in the upper mountains and, after receiving a tributary on the r., flows in a deep ravine. It is crossed, high up, by a narrow one-arched stone bridge; farther down, about 3 miles below Beit Sūhīn, there is a shallow ford between low hills. On reaching the plain it forsakes its original channel which is crossed by a good bridge, now unused, 9 miles N. of Jebeleh. It is fordable near its mouth, where the coast road to Lādiqīyeh crosses. After rain the torrent is exceedingly rapid and dangerous.

Nahr el-Kebīr (Lādiqīyeh).—This is the largest river on the western slopes and its course marks approximately the division

between J. Ansariyeh proper and the northern section of the range. The basin includes a large area of the latter and a comparatively small area of the former. Its most remote source is high up in the mountains, where it is fed by numerous affluents including that from the well-watered basin of Urdeh at the base of J. el-Aqra'. One of its chief affluents, on the l., is the Zerqa, which comes from 'Ain ez-Zerqa and flows in a deep chasm. This affluent is fed by numerous springs which, in the neighbourhood of Jisr Sheikh el-'Ajūz, form abundant streams in deep gorges filled with oleanders, planes, and other trees, the surrounding hills being covered with oak and pine woods. It joins the parent stream near Khān el-Jōz. The trunk river then flows through very broken country in a deep gorge, and at Restān there is a ford where the river is 50 yds. wide and 3 ft. deep (April): near Damat there is another ford which is difficult in the rainy season. The bed above the ford is filled with great trap boulders of various kinds of rock—porous lava, globular basalt, greenstone, &c.; the marl is rich in extremely well-preserved fossils. On reaching the plain the river flows between low banks of dark fertile soil, a deep but sluggish stream and, some distance from the sea, it is crossed by a many-arched bridge carrying the Tripoli-Lādiqīyeh road.

North of Lādiqīyeh there appear to be only small and short streams. The most noted is that from the springs at Beit el-Ma' which bursts from a perpendicular ledge of limestone and falls over a succession of terraces to the Orontes.

Streams of the Eastern Slopes

The few watercourses of any considerable length are found in the south, in the vicinity of Masyād-Hama and, in the north, in the district of J. Quseir. Between these, i. e. approximately between Qal'at es-Seijar and Jisr esh-Shughr, there are only short courses in deep gorges falling rapidly from the watershed to the Orontes.

Nahr Sarūj is a torrent from the heights near Masyād carrying a large volume of water during the rainy season.

Near the point where it falls into the Orontes it is spanned by an ancient bridge of 4 arches, called Jisr el-Mejdel, which carries the road from Hama to the north-west.

Nahr el-Abyadh rises in the mountains NE. of J. el-Aqra'. It is one of the largest tributaries of the Orontes and flows in a south-easterly direction through broken country. It follows a winding course through a gorge enclosed by perpendicular rocks. Rushing through a thick growth of oleanders, it doubles round the spur on which stands Qal'at esh-Shughr, and falls rapidly into the Orontes.

Nahr Bawardeh rises on the upper slopes of J. Quseir and takes a general north-easterly direction from about Qal'at ez-Zau. It doubles round the north side of the spur on which the qal'ah stands and there receives an affluent. It receives numerous other tributaries as it passes through a well-watered country. Near Qal'at ez-Zau there is a ruined bridge carrying the road to Antioch. The stream falls into the Orontes a few miles above Jisr el-Hadid.

III. COUNTRY EAST OF JEBEL ANSARĪYEH

Rivers and Streams

The main watershed lies along the eastern verge of the central depression, having a short and sharp fall towards the west, and a long gradual slope eastwards. On the north, the high plateau of Kurd Dagħ sends some of its water southwards into the lakes and marshes of the plain.

Apart from the Orontes, there are, in this district, only small perennial streams about which little or no information is available. A perennial stream flows from a spring in the neighbourhood of Barri, forming swamps beyond Selemīyeh, whence it runs through fields and orchards to the Orontes SE. of Hama. Winter torrents from the highlands are numerous and, except in the case of those falling to the Orontes, they empty into marshes or basins, there to evaporate.

There are numerous small perennial affluents on the eastern slopes of the plain of El-Ghāb. In the district between Homs

and Hama there are some wādis carrying streams from the highlands on east.

Kuwaik Su.—This river rises near 'Aintāb (see *Handbook of Asia Minor*, vol. iv, pt. 2). Flowing west of Aleppo, it takes a southerly course and at the village of Ansariyeh is spanned by a bridge carrying the Homs-Aleppo carriage-road. It is followed on the r. bank, as far as Udeihi, by the railway which there crosses the stream. The channel here bends westwards to Khān Tūmān, then southwards, finally falling into El-Matkh, a marsh, after having received a broad and sluggish affluent on the r. near its outlet. The channel carries a large volume of water in winter and spring and is well stocked with fish; during summer the river is much reduced and, below Aleppo, it is entirely used up by irrigation. Three miles above its outlet it is spanned by a modern bridge carrying the road from Aleppo to Palmyra via J. el-Hāss, and here the river is about 20 yards broad and has a strong current. Some distance above this, its banks are lined by a narrow fringe of poplars and fruit trees among which are summer residences of people of Aleppo besides bee-hive villages. The adjoining lands are irrigated from the stream.

Nahr ed-Dahab.—This stream rises north-east of the important village of El-Bāb. Hereabouts, in ancient times, the stream was diverted into three underground channels cut in the rock and, at regular intervals, there are air-holes which serve as wells. Following a southerly course, it finally empties into Es-Sabkheh, or Jebbūl Göl, one of a group of salt lakes.

Lakes and Marshes

Very little information is obtainable as to the lakes and marshes E. of the Orontes, most of which are dry in summer. Those on the western border of the plain appear to be basins into which winter torrents from the surrounding mountains, are collected. Some are described as being thickly overgrown with reeds and water plants which, as in the case of the fish-stocked lakes S. of Aleppo, provide cover

for enormous numbers of water fowl of almost every variety. There are large winter lakes and marshes around the base of J. Wustāni, notably the lake Er-Rūj, which receive the waters of the surrounding mountains, and there are also marshes on the eastern base of 'Alāla. A large lake, Mudhīq Göl, lies about half-way between Ma'aret en-Nu'mān and Aleppo. It is well stocked with fish, and is surrounded by villages whose inhabitants carry on a considerable fishing industry. North of this latter is the salt lake and marsh El-Matkh, also well stocked with fish. South-east of Aleppo there is a group of salt lakes Tatli Göl, Adji Göl, and Jebbül Göl or Es-Sabkheh. The latter receives the waters of two streams—the Nahr ed-Dahab, and another flowing from the neighbourhood of Aleppo. It is surrounded by marshes which cover an extensive area after the rains. The lake is dry in summer.

CHAPTER XIV

JUDAEA AND THE SOUTHERN DESERT

THE whole of the western section of southern Syria or Palestine, south of the Nahr el-Lītāni, lying between the Jordan and Dead Sea and the Mediterranean Sea, and comprising the three districts known, for the purposes of this handbook, as Judaea and the Southern Desert, Samaria, and Galilee, presents in the main the same general physical features. Speaking very broadly, it is a region intersected by groups of mountain ranges and peaks forming a southern extension of the Lebanon system and running southward till they finally lose themselves in the desert. The water-parting of this system, however, is not continuous, being broken between Galilee and Samaria by the broad plain of Esdraelon, and is so placed that from two-thirds to three-fourths of the country is on its western side. This fact, taken in connexion with the great depth of the Jordan depression, or Ghōr, has a peculiar effect upon the configuration of the region as a whole : on the west side the slope is long and fairly gradual ; while on the east side it is short and steep, precipitous even, especially towards the southern end, and is intersected by valleys worn to a tremendous depth by the force of torrents.

Longitudinally, the region divides itself into two main belts—the mountain plateau on the E. and the maritime plain on the W. South of the Esdraelon Plain, the central plateau, varying in width from 15 to 20 miles, rises gradually until round Hebron it attains a maximum elevation of over 3,000 ft. above the Mediterranean Sea. South of Hebron it declines in broken and sloping strata until it terminates in the plateau of the Southern Desert. The maritime plain

varies greatly in width from a few hundred yards in the N. to anything up to 30 miles in the widest part towards the S.

The region under consideration in this chapter extends from the Egyptian frontier on the S. to Samaria on the N. and is bounded on the W. by the Mediterranean Sea and on the E. by the lower reaches of the Jordan, the Dead Sea, and Wādi 'Arabah. It embraces two areas, treated separately below though merging one into the other, viz. the northern rectangular block of Judaea and a desert area, roughly triangular in shape, continuing southward to Akaba, the whole having a superficies of some 7,500 sq. miles.

JUDAEA

Area

Judaea has no defined geographical frontiers either on the N. or on the S. But, for the purposes of this handbook, the northern boundary line between it and Samaria, following the indication of Fischer and Guthe's map, is taken as running from near the small coast town of Arsūf, some 10 miles N. of Jaffa, to the outlet of W. el-Humr into the Jordan, at about lat. 32° N. The line runs somewhat S. of E. from the coast and passes over the crest of the Judæan Highlands between Sinjil and Lubban at a point about 10 miles N. of Jerusalem. On the south the dividing line is considered for present purposes to run from Wādi Ghazzeh to the south-west corner of the Dead Sea, passing through Beersheba. The extreme length of the territory thus defined, from N. to S., is 65 miles and its average breadth 50 miles, covering an area of some 3,000 sq. miles.

Under Turkish administration, the district of Judaea, together with the greater part of the Southern Desert (see p. 462), formed the sanjaq of El-Quds esh-Sherīf, or Jerusalem. Administered by a mutesarraf of the 1st class, it was an independent Governorate distinct from the rest of Syria and, nominally at any rate, directly under Constantinople. The whole sanjaq was divided into the kazas of Jerusalem, Jaffa, Gaza, Hebron, and Beersheba.

Physical Features

The Central Range.—As regards that part of the Central Range which appertains to the Judæan district, it has a breadth varying from 14 to 17 miles, reckoned from the western edge to where, on the east, the level drops to the Ghôr. A zigzag mountainous section north of Jersusalem is known as J. el-Quds, the highest point of which is Nebi Samwîl (alt. 2,935 ft.), 5 miles north of the city. South of this begins the section of the range known as J. el-Khalîl, around Hebron, where, at Halhûl, about $3\frac{1}{2}$ miles north of this town, the Judæan mountains attain their greatest elevation of 3,270 ft. above sea-level. South of Hebron there is a sudden step down to a plateau of wolds and open arable soil some 500 ft. lower, and farther south still another step leads to the soft white limestone or marly region (and an average elevation of 1,400 ft.), spreading round Beersheba and sometimes known as the 'Negeb'. This region in turn merges gradually into the Southern Desert.

On the west side of the watershed of the Central Range, in Judæa, the mountainous country extends to about half way to the sea. Its flank is rugged and steep in most part and is penetrated and broken by deep valleys and passes. Among the most important, enumerating from the north, are : W. Selmân, which seems to have been the principal approach to Jerusalem in ancient times ; W. 'Ali, a little distance south, along which runs the Jaffa-Jerusalem carriage road ; W. es-Sarâr, main affluent of the Nahr Rûbîn, along which runs the Ludd-Jerusalem railway ; W. el-Afranĵ, also tributary of the Rûbîn ; and, in the extreme south, W. el-Khalîl, leading from Hebron to Beersheba, and affluent of W. Ghazzeh. For further details of the wâdi systems of the western slope, see Coastal Streams, pp. 435 ff.

On the east side the watershed dips sharply from a maximum height of 3,270 ft. above the sea and an average height of 2,500 ft. to a maximum depth of 1,300 ft. below sea-level in the Ghôr—a fall of 4,000 ft.

or more within a distance never exceeding 20 miles. From the frowning promontory of Qarn Sartabeh just outside the northern border of Judaea, the eastern escarpment runs southward like a mountain wall and extends along the Dead Sea and beyond. This wall rises 1,000–1,500 ft. almost directly above the Ghôr and is everywhere steep and often precipitous and inaccessible and is cleft to the base at short intervals by deep and narrow valleys and gorges that issue from the mountains. The principal of these, commencing on the north, are : W. el-‘Aujeh, with branch wâdis Suweinît and Fārah (not to be confounded with W. Fār‘ah just N. in Samaria) ; W. el-Qelt, down the steep lower course of which runs the old road from Jerusalem to Jericho ; W. en-Nār (Kidron valley), rising near Jerusalem ; W. ed-Darajeh, with its heads on the watershed just S. of Bethlehem ; W. el-Ghār, known in its lower course as W. el-‘Areijeh ; W. el-Khudheireh ; W. es-Seyyāl ; W. Umm Bagheq ; W. Zuweireh ; and W. Mahawat. The Qelt, Nār, Darajeh and Ghār gorges in particular are so strikingly deep in comparison with their width and so precipitous of side, especially towards their lower courses, that they are uncrossable except at a few points, and their beds are so choked with boulders as to be impassable. Their upper courses or heads spread out fan-like into a perfect labyrinth of shallower valleys.

The general character of the Judæan plateau is thus described by G. Adam Smith. ‘The greater part consists of stony moorland, upon which rough scrub and thorns, reinforced by a few dwarf oaks, contend with multitudes of boulders, and the limestone, as if impatient of the thin pretence of soil, breaks out in bare scalps and prominences. There are some patches of cultivation, but though the grain springs gaily from them, they seem more beds of shingle than of soil. The only other signs of life, besides the wild bee and a few birds, are flocks of sheep and goats, or a few cattle, cropping far apart in melancholy proof of the scantiness of the herbage. Where the plateau rolls, the shadeless slopes are for the most part divided between brown scrub and grey rock ; the

hollows are stony fields traversed by dry torrent beds of dirty boulders and gashed clay. Where the plateau breaks, low ridge and shallow glen are formed, and the ridge is often crowned by a village, of which the grey stone walls and mud roofs look from the distance like a mere outcrop of the rock, yet round them, or below in the glen, there will be olive-groves, figs, and perhaps a few terraces of vines.'

Nowhere in this area are there any large perennial streams of water. On the whole plateau the only signs of permanent water are the pools at Jerusalem, Bethlehem, or Hebron, and, in the district from Beitin to Hebron, even in springtime, there are not more than six or seven tiny rills.

The Desert of Judaea. The sterile belt lying between the water-parting of the Central Plateau and the lower course of the Jordan and the Dead Sea and extending north and south from the frontier of Judaea to abreast of the Southern end of the Dead Sea, representing a rectangular tract roughly 40 miles in length by 12-15 miles in width, is known as the Desert or Wilderness of Judaea. The configuration of this region is virtually the same throughout its entire length from N. to S. : from the high line of watershed between Jerusalem and Hebron, at an alt. of 2,500-3,000 ft. above sea-level, the country falls in a succession of terraces to the edge of the great line of cliffs which, themselves, fall a further 1,000 ft. or more almost sheer to the Ghôr itself. This slope of triple gigantic steps is riven, as described above, by a number of wādis which have generally parallel courses and run for the most part eastwardly or south-eastwardly to fall into the Dead Sea. By their depth and direction they are effective obstacles to easy traffic from north to south, so that but few tracks, and these passable with much difficulty, traverse this area. Absolutely dry in summer, these wādis form, in the rainy season, the passages of torrential streams to the Dead Sea and each has at its outlet a delta of boulders ; W. el-Qelt in the north and W. Umm Bagheq farther south alone have perennial water.

From the hard limestone of the watershed the general geological formation of the desert changes to a soft limestone of a

yellowish colour and so porous that it swallows up rain almost at once. There are, however, a few tracts of flat ground such as the Buqei' plain, east of Mār Sāba, about 5 miles long by 2 miles in width, where the soil is of a more marly nature. As to vegetation, there are no trees except by the rare pools or rarer springs and occasionally in the bottoms of shady gorges. Great expanses, especially on the high part, are absolutely bare of plant life of any kind ; but in the depressions, in spring, there is much desert flora and patchy grass which, however, dries up with the first sirocco, leaving only burnt grass and aromatic plants with few or no leaves. Added to this the fact that such growth as there is, when cropped, requires two years to spring anew it will be readily seen that such a region is exceptionally inhospitable and fitted only for small nomadic pasturage. The region in fact can only support a scant population, except perhaps in the rare oases such as there are around the springs in W. el-Qelt, in the more productive tract of the Buqei', in the district immediately surrounding the spring of 'Ain Jidi at the mouth of W. el-'Areijeh, and in W. Umm Bagheq. Cultivation has no prospects except of a most meagre kind at some of the spots just mentioned and on the extreme western fringe ; to dig for ground water is vain. Apart from the tents of the Bedouin the only habitations of this wilderness are holy places such as the Russian monastery of St. George clinging to the face of the cliff on the way from Jerusalem to Jericho and the Greek monastery of Mār Sāba, 10 miles further S.

The Maritime Plain.—The fruitful coast-plain of Judaea and Samaria begins at the southern frontier near Gaza and extends northward, a uniform but gradually narrowing tract of land, as far as the promontory of Carmel. The Judæan section varies in width, from 30 miles in the extreme south to 20 miles at Ascalon, and is divided, in name as well as in character, into two parts at about the lat. of this place, the southern half being known as the Plain of Philistia and that to the north as the Plain of Sharon. Only the southern part of the Plain of Sharon, however, lies within the confines of Judaea.

The Plain of Philistia is mostly level, but rises now and again into gentle ranges 250 ft. high and is cut by large and deep transverse gullies—W. esh-Sherī'ah, Hesi, Mejma', Burshein, Sarār, and others—outlets of the drainage of the Judæan Highland (see Coastal Streams, below). The plain embraces the notable agricultural centres of Gaza, Mejdēl, and Esdūd, and nearly all the low ground is capable of cultivation; in spring, tracts of it have the appearance of a vast series of cornfields interspersed with pasturage or patches of reeds and rushes. There are but few trees except around certain coast centres. Inland the soil is of a light brown colour. Along the whole sea-board runs a strip of downs or dunes (with low cliffs here and there), sometimes composed of pure sand, sometimes covered with patchy grass. The drifting sand, which in places has encroached $2\frac{1}{2}$ or 3 miles or even more inland, is often an impediment to agriculture. South-west of Gaza, the plain rapidly merges into desert.

The part of the Plain of Sharon appertaining to Judæa embraces the highly cultivated districts round the important towns of Jaffa, Ramleh, and Ludd, and is traversed further north by the Nahr el-'Auja and its tributary wādīs. It is an admixture of cornfields, melon, cucumber and vegetable gardens, orange and palm groves, and strips and patches of sand covered in places with coarse grass, thorns or thistles, with frequent villages situated on mounds. As in the Philistian plain, water is abundantly found by digging, the soil is light and fertile, and in places affords excellent pasturage.

The Shephelah. It should be noted that, as far as Judæa is concerned, the Central Range does not fall immediately on the maritime plain. Along a great part of the western base lies a tract of lower hills, varying in breadth and forming a middle or transition zone between the mountains and the plain. It is a smaller and more open range, from 500–800 ft. high (and one or two summits up to 1,500 ft.)—the so-called 'Shephelah', or 'low ground', extending northwards from abreast of Gaza almost to the confines of Samaria, and representing roughly an area 30 miles in length by

5–8 miles in breadth. The region consists principally of soft chalky limestone forming groups of hills or downs intersected from E. to W. by a succession of main wādīs from the mountains of Judaea, the groups being again intersected by N.–S. transverse shallows and fertile valleys. Viewed as a whole, these hills present the aspect of an amphitheatre encircling the plain of Philistia on the E.

The Shephelah, as a hill group; is separated from the main Central ridge by a well-defined chain of broad and shallow valleys—W. es-Sūr, the plain of Es-Sant and W. en-Nejil—running N. and S. from Wādi Selmān to near Beersheba and W. Ghazzeh; it is flung off as it were from the main system into an independent group. Geologically the area has a certain counterpart in the soft low hills which separate the Central Range and Mt. Carmel, further N. (see p. 502 f.). In some of the main cross valleys of the Shephelah are some almost perennial water-courses and their bottoms consist of broad pebbly beds intersected with patches of alluvial soil which produces good corn. The terebinth and sycomore fig are characteristic trees. Inhabited villages are frequent in the district; but the unusual number of ruined cities scattered all over the Shephelah shows that it was once more thickly populated than it is now.

The Coastal Streams and Western Wādi Basins.—It would be misleading to describe the streams of Southern Syria which run into the sea south of Haifa, as rivers in the ordinary acceptance of the term, with the possible exception of the N. el-‘Auja which, fed by strong springs, enters the sea a few miles north of Jaffa; nor may they be described with certainty as directly draining the Central ridge of Judaea and Samaria. Robinson and others have regarded most of these streams as deriving the bulk of the volume of their waters from direct outflow from the very numerous wādīs of the western slope of the ridge; more recent observers, however, including Dalman, hold the view that no considerable amount of water reaches the sea direct from the mountain country even in the rainy season and consider these water-courses purely as outlets

of accumulated underground waters held up in the maritime plain by the sand dunes which fringe the whole of the coast.

The course of perennial flow of water of all the streams is short and the current generally slow—the length of the 'Auja, the longest, being not more than 15–20 miles. Some of their tributary wādis, higher up, however, hold disconnected stretches of water during longer or shorter periods of the year, as e.g. W. es-Sarār, tributary of the 'Auja. In none of the streams is the volume of water reaching the sea very great and, with the possible exception of the 'Auja, they are of little economic importance. This is the only stream which carries even small boats. But though they bring comparatively little water, each is the ultimate outlet to the sea of a basin of a complex system of wādis in the interior.

The principal streams, enumerating from S. to N., are the following: W. Ghazzeḥ, W. el-Hesi, N. Sukereir, N. Rūbīn, N. el-'Auja, N. el-Fāliq, N. Iskanderūneh, N. el-Mefjir, and N. ez-Zerqa. Of these, the first five belong to Judaea; the remainder are treated under Samaria.

(1) Wādi Ghazzeḥ runs into the sea about 5 miles SW. of Gaza. It has two important branches which penetrate Judæan territory—W. el-Khalīl, a long arm which has its head near Hebron and joins the main valley a few miles E. of Beersheba; and W. esh-Sherī'eh, which passes Tell esh-Sherī'eh and crosses the Gaza-Beersheba road at Abu Hareireh, to join the Ghazzeḥ about 8 miles from its mouth.

Musil (in *Arabia Petraea*, II, i. p. 14) says that the main channel of W. Ghazzeḥ carries perennial water from Bir Shanaq some 17 miles upstream; but Dalman says this statement was based on hearsay evidence only, and adds that there may be permanent stretches of pool as far up as this point, but certainly not a permanent flow of water. Baumert, a Consular Secretary in Jaffa, states that an actual permanent water-course begins at about $1\frac{1}{4}$ mile from the coast, just below the point at which the Khān Yūnis-Gaza road crosses it. As to the W. esh-Sherī'eh, Dalman reports that,

certainly no permanent water runs from it into W. Ghazzeḥ ; but he records having seen water at Abu Hareireh at the end of March 1908, and Baumert at the end of July 1913, though there was no water at the mouth of the Sherī'eh at either of these dates. See further p. 464. *

(2) Wādi el-Hesi. The outfall of this wādi lies about midway between Gaza and Askalon and it has its main heads on the waterparting of the Judæan plateau between the villages of Dūra, west of Hebron, and Dhāheriyeh between Hebron and Beersheba. The main channel takes a generally westerly course and enters the true maritime plain near Tell el-Hesi. Continuing westward it passes close S. of the village of Deir Sineid and, after a further course of some 4 or 5 miles, falls into the Mediterranean Sea. A rather important branch, known in part of its course as W. Muleiḥeh, falls in on the l. bank near Tell el-Hesi after passing Tell en-Nejileh, between which two hills it carries a small sluggish perennial stream ; another branch, W. Halīb, falls into the main wādi at Deir Sineid.

The main channel of W. el-Hesi appears to carry perennial water for only about 1 mile from its mouth, this stream finding its supply of water in the neighbourhood of the coast dunes.

(3) The Nahr Sukereir is the outlet of an extensive and complex system of wādis draining the central ridge between Bethlehem and Hebron. Its main arms, each with a generally east-westerly course, are two : on the N., a long valley bearing various local names—W. Musurr, Jindi, Sant (with branch Es-Sūr joining at Shuweikeh), and Burshein—which, after zigzagging through a gorge, enters the plain at Tell es-Sāfi ; on the S., a long wādi commencing near Dūra and known as W. el-Afranĵ down which and its continuations, W. Jemrūreh and W. Sharqīyeh, runs the important road from Hebron to Beit Jibrīn. Below this town, the southern valley continues north-west as W. Mejma' to join the northern arm at Jisr Esdūd about 2 miles N. of the village of Esdūd. The southern arm receives an important branch, W. el-Ghuweit,

from the south, which, after passing 'Arāq el-Menshiyeh and Felūjeh, joins it near Beit Durās. From Jisr Esdūd, the united valleys, under the name N. Sukereir, run N. for about 4 miles and finally make a sharp bend WSW., to enter the sea about halfway between Askalon and Jaffa. According to Dalman and to Fischer's map, the Sukereir is perennial from a point a little below the bridge of Jisr Esdūd (which carries the Gaza-Jaffa wheel-road across it), just before the wādi cuts through the dunes.

(4) The Nahr Rūbīn is the outlet of the important system of valleys intersecting that part of the western slope of the central ridge extending from Bīreh to Urtās, on which Jerusalem is situated. It falls into the sea about 9 miles S. of Jaffa and about 1 mile N. of the ancient harbour Mīnet Rūbīn, after passing E. of the village of Yebnah and the shrine of Nebi Rūbīn, from which latter it takes its name. Its all-important arm is W. es-Sarār, which has its head not far from Bīreh, at mile 10 of the Jerusalem-Nāblus road. Along the Sarār and a southern branch comprising W. es-Sikkeh (with branch W. Bittīr), and W. el-Ward, is carried the Ludd-Jerusalem railway. Other well-known tributaries of the Sarār are W. en-Nejīl from the south and W. el-Ghurāb, from the north, both joining near Deir Abān. The Sarār enters the lowland hills near 'Ain Shems and runs for about 9 miles in a north-westerly direction receiving an important feeder, W. el-Menākh, from the south. It then passes through a gap between the villages of Mughār and Qatrah, turns due N. past Yebnah and finally bears W. to enter the sea as the N. Rūbīn.

According to Dalman, permanent water begins in the marsh country E. of the dunes near Tell es-Sultān, 3-4 miles from the coast, just before the stream bends westwards. Fischer's map, on the other hand, shows the Rūbīn as a perennial stream to about 9 miles above its mouth, and the P.E.F. map indicates permanent water for about 18 miles: the former is probably excessive, and certainly the latter, for, though W. es-Sarār is rich in springs along a considerable section, the flow

of water from these is insufficient to form a continuous stream so high up the valley after irrigation needs have been supplied. Robinson seems to support the testimony of Dalman, for he records that 'in autumn the N. Rūbīn sometimes dries up'. The estuary of the river is closed in summer by a sand-bar.

(5) The Nahr el-'Auja, or 'the river of winding water', is the most important of the coastal streams south of the Litāni. It empties itself into the sea about 5 miles north of Jaffa and is the outlet of one of the most considerable wādi systems of the western watershed. The basin lies mostly, though not wholly, within Judaeian territory and embraces within its limits the important group of towns—Jaffa, Ramleh, Ludd. Its very numerous upper ramifications receive the drainage water of that section of the central ridge extending from Bīreh, 10 miles N. of Jerusalem, almost to Nāblus. From among the intricate tangle of water-courses composing this basin, three principal arms may be singled out as being the most important: (1) W. Musrāreh (or Bārideh), joining the main stream from the south a few miles above its outlet and known as it penetrates inland by the various names Wādi Nusrah, Shellāl, and Selmān, along a section of which latter and a well-known branch, W. 'Ali, joining at Qubāb, runs the Jaffa-Jerusalem carriage road; (2) W. Deir Ballūt, the main middle arm; (3) W. el-Ashkar, or Ishkar, known higher up as W. Qānah, into which falls W. 'Azzūn, an important branch along which runs the most direct track from Jaffa to Nāblus.

The 'Auja proper derives its water partly from strong springs the chief of which are situated at Ras el-'Ain in W. Rabāh; but the main supply, according to Dalman, is derived from the underground drainage water of the maritime plain (see above, p. 434 f.). The stream runs in a deep channel between soft alluvial banks which are sufficiently high to keep the river from flooding the country. Its bed has no firm bottom and for this reason, though the current is not rapid, the stream is difficult to cross except at the bridge carrying the Jaffa-Haifa road, where the channel is from 20-30 yds. wide.

According to Dalman, the 'Auja is perennial only from Ras el-'Ain, and, even below this point for some miles, it does not carry a great volume of water ; it is only when it begins to draw on the subsoil water of the plain that the stream becomes considerable. The P. E. F. map shows perennial water much further up both the main wādi and its northern branch W. el-Ashkar, but, according to Dalman, the latter has no permanent stream though it carries much water in heavy rain. The only perennial affluent of the 'Auja is W. Musrāreh, (the Bārīdeh of the Survey, but a name not known locally, according to Dalman). This branch channel has the character of a wide shallow gully which carries a torrent after rain, but normally is only a trickling stream which begins about $\frac{1}{2}$ mile above the steel bridge carrying the Jaffa-Haifa carriage road across it. Dalman's indications as to the perennial water of the 'Auja agree, substantially, with the indications of Fischer's most recent map.

The estuary of the 'Auja is never completely closed by a sand-bar, even in summer, as is the case with the N. Rūbīn. The ford, by which the coast track from Jaffa to Haifa crosses, is not at the mouth itself, for lack of sufficiently firm ground, but some little distance inland where the stream suddenly makes a N.-S. bend. The 'Auja is the only coastal stream south of the Lītāni offering economic possibilities of any considerable extent. Water is pumped from it to irrigate large orange gardens, and the stream drives three or four mills. Consular Report, 1913, says: 'It is a slow-moving stream with a perpetual flow . . . offering many possibilities. A power station for electricity would not be difficult to erect and, lower down, irrigation would make the surrounding country most productive, . . . A sugar factory might be established.'

Coastline

The coast from the Egyptian frontier to Haifa is an almost straight line running from S. to N. with a slight general inclination eastward. There are no strongly marked

irregularities producing deep estuaries or sheltered gulfs—a small inland basin at Ascalon, low reefs at Abu Zabūra and Jaffa, small curves of the beach at Tantūrah, a projecting rock at 'Athlit and the sand-barred mouths of some half a dozen small streams are the only possibilities of natural harbourage. Attempts at establishing permanent ports for deep sea vessels have, so far, proved abortive, as witness the remains of ancient moles at Ascalon, the suggestion of a double harbour at Tantūrah and the solid ruins at 'Athlit; the river estuaries have never been utilized as harbour sites. Jaffa is an open roadstead with dangerous reefs and can only be approached by small craft through a narrow strait in the reefs which is difficult to negotiate in stormy weather; the beach at Gaza is straight and low and the roadstead even more unsheltered than Jaffa; the landing-place at Mīnet el-Qal'ah is between reefs.

From the Egyptian frontier at Rafah to Gaza, 19 miles, the coast is extremely uniform and trends north-eastward in a slight curve and consists of a sandy beach with sandhills at intervals. About midway there is a slight projection, Ras el-Markab, and up to this point there is no vegetation near the coast, but beyond, in the direction of Gaza, a few shrubs and trees appear. A heavy swell is usually breaking on this shore. From Gaza to Ascalon, 10 miles, the coast continues NE. and is still very uniform. It is sandy with sandy hillocks at intervals and there is an almost constant heavy surf along it. At Ascalon, a bold line of cliffs rises to a height of 60 ft. directly from the sea. From this point to Jaffa, 26 miles, the foreshore is of very soft sand of deadly uniformity interrupted by a few black rocky capes and now trends NNE. A wilderness of shifting sand dunes, soft and waterless, which 'march with the winds', masks the plain from the sea and extends from 2 miles to 5 miles inland. The N. Sukereir and N. Rūbīn force a passage to the sea in this section, and the only other noticeable irregularities consist of some rocks or islets that form a sort of natural jetty at Mīnet Rūbīn. For 3 miles S. of Jaffa and 2 miles N. of it the shore is fronted by rocky

reefs, awash and 50-100 yds. from the shore. The foreshore here is very soft sand and about 30 yds. back the ground rises in the form of a very indented sand-cliff, to the height of about 30 ft. above sea-level. Jaffa stands on the brow of a rocky hill about 115 ft. high. From Jaffa to Qaisāriyeh (Caesarea), 28 miles, the coast trends N. slightly by E. For 2 miles it is low and sandy and rises, a few yards back from the water's edge, to an undulating line of sand-hills 40-50 ft. high; thence to Qaisāriyeh the coast consists of red cliffs, with a sandy beach at the foot along which a good deal of traffic passes, as being preferable for some sorts of transport to the roads further inland, but the sand is not very firm. Three miles north of Jaffa the N. el-'Auja flows into the sea between steep muddy banks, and the ancient port of Arsūf is situated on a conical hill, in a little creek within the cliffs, about 6 miles further on. The coast from Qaisāriyeh to Tantūrah, $6\frac{1}{2}$ miles, is an almost straight sandy beach broken only by the wide and deep estuaries of the N. ez-Zerqa and the N. ed-Dufleh. About $1\frac{1}{2}$ miles inland the coastal plain is backed by the Khashm, a prominent table-topped upland, 457 ft. high, an extension of Mt. Carmel. Hammām islet, black and rocky, is the largest island of a miniature archipelago situated about 300 yds. off the beach about $3\frac{1}{2}$ miles south of Tantūrah. Other groups of tiny islets, close in to the shore, appear at Tantūrah and 'Athlīt. They are all, in reality, the protruding heads of a long shore reef which extends intermittently from south of Qaisāriyeh to near 'Athlīt. The islets at Tantūrah extending in a south-westerly direction parallel to and 150-200 yds. from the shore form an efficient breakwater at this port. From Tantūrah to 'Athlīt, 6 miles, the coast runs almost due northward and is rocky, with small sandy bays at intervals. About $\frac{1}{2}$ mile inland, a low rugged ridge runs parallel to the coast and, behind this, is Mt. Carmel which gradually approaches the shore as it runs northward. 'Athlīt stands on a rocky promontory having on its southern side a small bay which recedes about 500 yds. and opens to the NW. From 'Athlīt the coast runs N. as a sandy

beach for $7\frac{1}{4}$ miles to Tell es-Semak, a low isolated peak on a reef protruding seaward. Near Tell es-Semak, Mt. Carmel approaches to within 300 yds. of the shore—a fine bold promontory, about 550 ft. in elevation, on which stands a lighthouse. From this point the coast trends ENE. for $1\frac{1}{2}$ mile to Ras el-Kerūm, and then bears SE. for $2\frac{1}{2}$ miles to Haifa—a sandy beach with rocks off the shore all the way.

The currents of this coast run parallel to it and come laden with sand and Nile mud that help to choke the few faint estuaries, harbourages and creeks. The prevailing winds are from the SW.

Geology

The general geological composition of the whole region extending from the plain of Esdraelon to Beersheba is impervious limestone (cenomanian), overlaid in places by porous flinty chalk (senonian), and this overlaid in turn by marine deposits of the Mediterranean Sea and alluvium. The limestone, generally dark grey in colour, hard and compact, and lying in nearly horizontal stratified beds varying in thickness from 2 to 7 ft., appears almost without interruption along the crest of the central ridge and, underlying the chalk, appears also round the edge of Mt. Carmel and at the base of the cliffs on the western shore of the Dead Sea. The chalk appears on the eastern slope of the ridge, throughout the desert of Judaea, in the Shephēlah and a great part of the western slope, and in northern Samaria and Carmel. The marine deposits, interspersed with broad tracts of alluvium, appear in the maritime plain—the former also appearing in the Ghōr and the latter in the Zōr, see Chap. XXI.

The configuration of the country is what would be naturally expected from such formation. Where the limestone prevails there are barren stony hills hemmed in and divided by innumerable valleys, mostly narrow and nearly all dry, and the horizontal beds give a tame outline to the hills, and their summits are flat and covered with stones. Where the chalk

appears, the outlines are softer and broad white patches and bands run over the mountains ; here the water has worn down the hills, and plains result from the softer formation.

Water-supply

As a general rule, springs occur where the limestone (cenomanian), is predominant, especially at the juncture with the overlying porous soil (senonian) ; but where there is a great thickness of this latter, the water-supply is either from deep wells cut through it, or from artificial tanks and cisterns constructed to collect the surface water. As to quality, the senonian water is hard but agreeable to the taste, whereas the cenomanian rock, containing soluble magnesium and sodium salts, renders the water, stagnant in it, brackish and medicinal.

The water-supply of the Judaeen hills is, in general, inferior to that further north towards Samaria. Even Jerusalem itself was remarkable for its insufficient supply, but since the occupation, the city has been well supplied with water from springs in Wādi el-'Arrüb, collected into a reservoir and carried thence by a pipe system. In the section of the watershed to the N. and NW. of Jerusalem the supply is principally from deep wells, cisterns and rock-cut tanks ; but there are two notable springs, 'Ain Badrān and Yanbū', near the Samaritan boundary, west of Sinjil. Further S., from Halhūl through Hebron to Dūra, the watershed is well supplied with springs of good water. The district south of Dūra is comparatively dry, the water sinking through the soft chalky limestone, but there are here some springs forming small streams that run perennially for a few miles, notably 'Ain ed-Dilbeh. On the western slopes, springs become numerous and, from some of the larger of these, streams run down the valleys in the wet season. On the eastern slopes, embracing the Desert of Judaea, springs become more and more rare going eastward until the Ghōr is reached and the scanty supply is almost entirely from artificial reservoirs cut in the rock for the collection of surface-

water. In the northern part of this locality, however, 'Ain Sāmīeh, 'Ain Fasā'il, 'Ain Fārah, 'Ain el-Qelt, 'Ain ed-Dūq and 'Ain en-Nūei'ameh are fine sources; the springs of 'Ain Jidi and Umm Bagheq (see p. 657) are also notable. The water-supply of the Dead Sea Ghōr is noted in chap. XXI. The Shephelah is supplied almost entirely from spring-wells, the water here being found just beneath the surface; there are also a few brackish perennial springs, feeding slow small streams, such as 'Ayūn el-Hesi and 'Ayūn Qassābah. In the maritime plain there is but little surface water and the main supply is from wells which may be dug almost anywhere and water found not far below the surface. Wells occur even on the sea-shore, as at Sheikh 'Ajlin and Sheikh Hassan. For further notes on wells and water in the coastal plain, see chapter on Samaria, p. 484.

Climate

The climatic features of Syria as a whole are described in Chap. II; peculiarities of the climate of Judaea may, however, be further considered. Geo. Adam Smith says: 'Take a section of the country across Judaea. With its palms and shadoofs the Philistine Plain might be part of the Egyptian Delta; but on the hills of the Shephelah which overlook it, you are in the scenery of Southern Europe; the Judæan moors which overlook them are like the barren uplands of Central Germany, the shepherds wear sheepskin cloaks and live under stone roofs—sometimes the snow lies deep; a few miles further east and you are down on the desert among the Beduin, with their tents of hair and their cotton clothing; a few miles farther still, and you drop to torrid heat in the Jordan valley.'

The district thus affords considerable general differences of temperature in different parts, due primarily to the range of level from about 3,000 ft. above the sea on the watershed to 1,300 ft. below sea-level in the Ghōr and to the configuration of the country. The Central Range though subject to ample annual changes of temperature is one of the healthiest of

localities given good sanitary conditions. The mean annual temperature here varies from 62° to 68° . Except when the sirocco (*sharqīyeh*) blows, the warmest days of summer seldom exceeds 90° and the cold of winter still more seldom falls to freezing point. January is the coldest month with a mean temperature of about 46° .

Dr. G. E. Post says : ' In speaking of the temperature in the shade in this land, we must not forget that it quite inadequately expresses the intense fervour of the direct rays of the sun, when no cloud intervenes to mitigate the heat. On the sea-coast the sun temperature often reaches 145° Fahr., and sometimes over 150° Fahr., and in the Jordan valley and in the narrow gorges which debouch into the basin of the Dead Sea, the heat is blistering. One of these wādis is appropriately termed Wādi en-Nār, the Valley of Fire. The temperature of the plateaux is subject to extremes of heat, and to bitter cold winds.'

The following comparative table gives an indication of the climatic conditions obtaining at Jerusalem and Jaffa, the one situated on the plateau and the other in the plain :

	Jerusalem.	Jaffa.
Mean annual temperature	61.2° Fahr.	67.5° Fahr.
Mean annual rainfall	26.04 inches	23.6 inches
Average number of rainy days in the year	56 days	62.5 days

Rainfall.—The mean monthly rainfall, in inches, and the number of rain days at Jerusalem as compared with Jaffa, is as follows :

	Jerusalem.		Jaffa.	
	Rainfall in ins.	Rain days.	Rainfall in ins.	Rain days
January	6.5	12	5.6	15.2
February	5	10	3.9	10
March	4.1	9	2.7	7.4
April	1.6	5	.9	5
May . . . . .	.2	1.6	.1	1.2
June, July, August	—	—	—	—
September . . . . .	.04	.1	.2	1
October . . . . .	.4	1.8	1.4	4.4
November	2.3	6.4	3.2	7.5
December	5.9	9.7	5.6	10.6

Rain is rare in May and September both in the plain and in the mountain country, and almost totally absent in the intervening months. The most rainy months in both localities are December and January. The highest fall of rain for any month recorded at Jaffa, during the years 1904-13, was $12\frac{1}{2}$ ins., during December 1911.

Winds.—For direction of prevalent winds, see Chap. II, Table XXII, pp. 74 ff.

Hail and snow.—During most winters hail and snow fall on the Judæan hills. The former is common and is often mingled with rain and accompanied by thunderstorms which happen at intervals through the winter and are frequent in spring. On the Central Range snow has been known to reach a depth of nearly 2 ft. and to lie for 5 days or even more, and the pools at Jerusalem have sometimes been covered with ice ; but this is rare, the ground seldom freezes and snow usually disappears in a day.

Natural Products

Minerals.—Judæa, like southern Syria in general, is poorer in mineral than in any other resources and, as far as is known, there are practically no metalliferous deposits. Good building stone is plentiful in the hill regions ; a very hard reddish limestone, used much in decorative work, is quarried round Bethlehem. In the marly strata of some parts of the Ghôr sulphur is found and is used by the Bedouin for making powder. Bitumen or bituminous stone is found in layers or in loose blocks around Nebi Mûsa, W. Mahawat, and in the Dead Sea Ghôr, especially the former. Working for bitumen would probably be profitable around the Dead Sea ; drilling was already being conducted at the outbreak of war. A kind of bituminous limestone known as *hajar mûsa* is in demand at Bethlehem for making vases and other vessels of ornament. There are gypsum and phosphate deposits in certain parts of the Desert of Judæa, but they are unexploited, chiefly owing to the difficulties of transport. Oil has been found near Khirbet Khuweis south-east of Kurmul, in the

Jāhalīn country and, just previous to the war, some preliminary work had been done by an American company and a metalled road from Hebron to the oil district was in process of construction.

Flora.—Of woods, in the strict sense, there are none in Judaea. Apart from olive groves of considerable extent, trees of various kinds are (or were) only to be found in a very scattered way throughout the district, and much of this growth has now probably disappeared. The following are the trees and shrubs most frequently met with. The oak (of which five species are found in Judaea) is pretty generally distributed, but is more frequent in the north than in the south. The most common variety is the evergreen, with prickly leaves, of scrub growth. The poplar and willow are very numerous along the water-courses. The cypress is planted in towns and cemeteries. The pine (*Pinus Pinea*, *L.*) is occasionally found, but is more common in the districts further to the north. The palm is confined to the maritime areas, notably round Gaza and Jaffa. The terebinth, which often grows to a great size in rocky places and on hill-sides, is common in the districts N. and W. of Jerusalem, some unusually fine specimens being found in Wādi es-Sant. The walnut is fairly common, usually near springs. The sycomore fig, a fine tree producing edible but poor dry fruit, is found in many parts, especially in and about towns. A very fine specimen grows just below the Pool of Siloam, near Jerusalem. The gum acacia is the characteristic and most striking tree of the wādis west of the Dead Sea south of 'Ain Jidi, notably of Wādi es-Seyyāl.

The most common shrubs are the hawthorn, of various kinds, mostly thorny, in the mountain region; the tamarisk of the variety *Tamarix Jordanis*, along the banks of the lower Jordan; and the white broom, in the valley of the Jordan and its affluent wādis.

Fauna.—Wild animals of the more formidable kind are no longer found in this district. The ibex or wild goat haunts the hills and the eastern and southern desert-region towards the Dead Sea, notably about the wādis Qumrān, Sideir, and

Umm el-Badan. Gazelles are numerous in the same regions. Wild boars, though rarely seen, exist in considerable numbers in the cane-brakes and marshes of the lower Jordan valley and the Oasis of 'Ain Feshkkeh. The coney is found in the hills and rocky cliffs bounding the Ghôr and Dead Sea, but is extremely shy and difficult to secure : it is the characteristic animal of the solitary district between W. Qumrân and Ras Feshkkeh. In the Ghôr, the hare and the porcupine are also met with. Of noxious game, the fox and the jackal are common, the latter being met with everywhere, especially in the Ghôr ; the hyaena is very occasionally met with in the lower eastern slopes of the Judæan highlands. Winged game is abundant, especially rock and wood pigeons, sand partridges, and quails, towards the plains of Jericho and the Dead Sea Ghôr. Of birds of prey, the eagle, vulture, hawk, and falcon are not uncommon. Snakes, some of a venomous kind, and reptiles, a few species of which are of large size, are numerous. Mosquitoes are troublesome in certain parts of the maritime plain and about the brackish pools and marshy tracts on the western Dead Sea shore.

Industries

Agriculture.—The approximate frontier between the ' desert and the sown ' in Judæa is well shown in Fischer and Guthe's map, scale 1 : 700,000. Broadly speaking the area of cultivation lies north and west of a line running inland from the coast a little south of Gaza and keeping at first south of 'Arâq el-Menshiyeh, Qubeibeh, and Dûra. Here it turns south, passes round Semû'a, then turns north and passes as a sinuous line, with an easterly trend, to the east of Yutta, Hebron, Halhûl, Bethlehem, El-'Azeriyyeh (1½ m. E. of Jerusalem), Deir Dîwân, and Tayyibeh. All south and east of this line may be characterized as desert, with the exception of a few small isolated tracts of cultivation, notably around Beersheba, Dhâheriyyeh, Deir Dôsi, 'Ain Fârah (Qelt basin) and cultivated tracts in the Ghôr around Jericho. The almost absolutely barren tract between the line indicated and the lower Jordan

and Dead Sea, embracing most of the eastern slope of the Central Ridge, is the Desert of Judaea.

According to Cuinet (1901) roughly $\frac{1}{2}$ million feddans of land, centred for the most part in the Jerusalem-Hebron region and round Jaffa and Gaza, were actually under cultivation, two-thirds being under grain. Twice this area is cultivable, but at present lies waste or fallow; about the same area is covered with good pasture and scattered trees (mostly on the hills); the rest of the district is bare, abrupt, rocky ground, stony plateau, or desert.

The term 'cultivated' is, however, used only in a restricted sense. Tracts of cultivation of any considerable extent are only to be found in the maritime plain: on the crest and slopes of the Central Ridge tillage is confined almost wholly to the valleys and, even here, not in a very continuous sense but rather in patches around springs and small streams or where water can be conserved for irrigation in pools or cisterns. Many of the latter, however, in their present ruined and leaky condition count for little in the fertility of the country.

The principal products of the mountain region are fruits and vegetables; cereals (chiefly wheat) are cultivated only in comparatively small patches in certain open valleys, where there is sufficient alluvial soil to be worked by the plough, or on the lower plateaux. The grape is the staple fruit. The vines are cultivated in terraces on innumerable hill-sides. The culture of the vine had a tendency to decline, but in the years just previous to the war it was rapidly returning to favour, principally at Hebron and in the Jewish and German Colonies. Next in importance comes the olive; groves are found more or less in every part of Palestine, but the soil of certain districts such as Hebron, Jaffa, Ludd, and Ramleh is especially suited to olive cultivation on a large scale. Other fruits are the fig, white mulberry, lemon, citron, apricot, quince, and walnut; in lesser abundance, the pomegranate, pear, peach, and almond. Vegetables include the cucumber, tomato, artichoke, egg-plant, and *bāmīyeh*, in addition to the more common kinds.

The outstanding products of the plains are cereals (barley, wheat, dhura), sesame, oranges, grapes, almonds, melons, and vegetables. Here the areas under cultivation are much more extensive than on the hills, especially around Gaza and Jaffa ; but even so it should be borne in mind that, at present, the greater part of the plain lies untilled and is given over largely to natural vegetation (wild grasses and grains, succulent plants and hosts of wild flowers), affording merely pasturage for cattle, very little of which, however, lasts through the summer.

Agriculture is carried on, on modern scientific lines, only at the various Colonies (Jewish and German). For details of the culture and products of the Jewish centres, see I.D. 1203.¹ For the German Colonies, see p. 192 and p. 512.

The principal areas of cultivation, where native methods still prevail, are the following :

(1) Gaza district. The main winter crop between Rafah and Mejdel and extending inland almost to Beersheba, where the soil is light and will not bear wheat so profitably, is barley ; comparatively little barley is grown in the rest of Palestine. Gaza barley is specially characterized as 'long, curved, tender, and very white in colour unless it has been touched by rain'. The success of the crop depends almost entirely on the early spring rains of March and April and in a good year it is estimated that as much as 40,000 tons are available for export. The barley of Gaza is the first to appear on the market and is therefore in great demand. The summer crop of Gaza is dhura, sown early in May but requiring a good deal more preparation of the soil, and this crop is the mainstay of the people. But few dry vegetables (lentils, horse-beans, &c.) are produced in the Gaza district ; but, around the town, there are many large orchards and green vegetable gardens, all under irrigation by the *nā'ūrah*. The orchards are said to produce more pomegranates than any other locality, but few oranges are grown ; there are also extensive olive groves. The palms in the Gaza district are poor and the crop not

¹ The Jewish Colonies in Palestine (1882-1914), compiled by the Admiralty Naval Staff Intelligence Department, January, 1919.

very profitable, as the dates have to be matured artificially. Of green vegetables, cucumbers, tomatoes, and egg-plants are the principal, the soil being very suitable to these and their growth quick; cucumbers can be produced in a few weeks and the natives live on them as much as on anything during the early summer months. On unirrigated, but carefully-tilled land, a considerable area is normally under water-melons, sown in May and June.

(2) Beersheba district. Between this town and Hebron there is a tract of plateau, 9 miles by 3 miles, where the soil is free of stones, and the rolling red ground, broken here and there by outcrops of lime-stone, is partially tilled with wheat and barley. Pasturage is also good in this locality and supports large flocks of sheep, especially north-west of Beersheba. South and immediately east of Beersheba cultivation is very patchy and the pasturage spare.

(3) The district round Hebron principally produces grapes and fruit-figs; little grain is grown. W. 'Ain el-Qūf, west of Hebron, is especially famed for its grapes of large size. Otherwise the district is poor in cultivation.

(4) Jerusalem district. Southwards, to Bethlehem and beyond, there are wheat and barley-growing patches, mostly stony and small in extent, but sufficiently large to be ploughed with oxen. Around Jerusalem and northward, there are some fertile patches of not inconsiderable extent where a considerable amount of scientific 'dry farming' is carried on; the ground, not artificially irrigated, is kept loose by continual tillage. Ploughing here takes place in January-February, and there are two or three cross ploughings up to the beginning of April, when sowing takes place, see further p. 255. The crops are principally barley and wheat, with some sesame and dhura. West of Jerusalem, at 'Ain Kārim and in the W. es-Sikkeh, at Bittir, vegetables are intensively grown, also water-melons, there being in both of these localities a good water-supply from perennial springs. Between Bāb el-Wād and Lātrūn there is considerable cereal cultivation on terraces.

(5) The maritime plain, N. and S. of Jaffa and Ramleh.

Cultivation here, as stated above, is largely in the hands of Jewish and German Colonists, the chief crops being oranges, grapes, and almonds; but the natives grow a good deal of wheat, sesame, melons, and dhura. There are especially rich tracts in the valleys east of Ludd, in the plain of Felūjah to the south-east, and around the large village of Mejdēl. A scheme set on foot a few years ago to dam the N. el-'Auja near Ferikhīyah, to provide irrigation for some 4,000 hectares of land, did not materialize. Sugar-cane would probably be a suitable and profitable crop here; it is already grown to a limited extent, but the cane is only used for chewing.

(6) The lower Jordan. This locality produces large quantities of fresh vegetables for the Jerusalem market. For further details of the crops here, see p. 658 f.

Farming operations in Judaea and in Palestine in general, outside the colonies, are carried on on most primitive lines. Efforts to introduce modern agricultural implements and machinery among the natives have so far met with poor success. The necessity for modern ploughs and reapers has not yet been felt, and harrows are not used. The peasant is quite content with his home-made implements, and climatic conditions, early harvests as well as cheap labour render, for the time being, time-saving machinery almost superfluous. Moreover, the attitude of the Turkish Government towards agriculture, as elsewhere in Syria, has been one of almost complete indifference. The increase in orange cultivation in the Jaffa and other localities has rendered the question of irrigation a very important one and on the more up-to-date farms modern appliances have almost entirely taken the place of the old water-wheel or *nā'ūrah* for irrigation. Pumps of the barrel and chain and bucket types, of improved patterns, worked by oil motor, have been extensively introduced by the colonists, but the natives are, for the most part, still content to irrigate with the primitive *nā'ūrah*.

The crops often fail, especially the barley crop in the Gaza district; this is not due to the lack of fertility in the soil, but partly to the scantiness and uncertainty of the

rainfall and partly to the method of ploughing obtaining with the natives and which is considered not usually deep enough to keep the seed sufficiently well-moistened to protect it from the heat of the sun at the period of the development of the ear. The abundance of the crops (grain in particular) depends not only upon the adequacy of the winter rainfall, but equally upon the sufficiency of the later rains which are essential to the swell of the grain, and also upon the absence of hot E. winds which scorch and destroy. Lean years are sometimes due to the ravages of locusts and much destruction is often done by rats. The locusts, if they come, usually arrive from Africa in March and, unless dealt with before the 'hoppers' are hatched, do untold damage. Early information of their flight can usually be obtained from the Sudan: they frequently miss Egypt and follow up the east coast of the Red Sea.

Orange culture in the Jaffa district is fully described in Chap. VII, p. 264 f.

Stock-rearing. — This branch of agriculture is very restricted and comparatively neglected in proportion to the resources of Judaea. The supply of meat is consequently insufficient to the needs of the district and is very largely supplemented by supplies brought by the Bedouin to the principal markets at Jerusalem, Jaffa, and Gaza. Most of the cattle are of a small black breed. North of Jaffa there is a fancy breed of white oxen, but they are not numerous. Horse breeding in southern Palestine is non-existent. Sheep and cattle pasture mostly in the plain, and goats, in far greater numbers, in the hilly districts, being capable of living where other grazing animals would find little to support life. In 1901, according to Cuinet's figures, the approximate numbers of head of stock were as follows: Cattle (oxen, bullocks, cows, buffaloes, calves), 19,000; sheep, 77,000; goats, 159,000; horses, 700; donkeys, 4,800; mules, 400; camels (including the desert to the south of the district), 3,500; but, though the proportions may be fairly accurate, these figures in all probability give no correct estimate of the

actual numbers in the various categories at the present time. Bee-culture is carried on in a primitive way, mostly in the villages. Cuinet estimated the number of hives at about 2,700, producing annually 6,000 lbs. of honey and 1,800 lbs. of wax. The quantity of honey produced per hive is very small owing to lack of scientific treatment.

Manufactures.—The industries of Judaea, other than agriculture, are comparatively unimportant, and are mostly carried on by the Jewish element. They include :

(1) Soap making. This may be regarded as the principal manufacturing industry of southern Sýria as a whole. In Judaea, it is carried on at Jaffa and the neighbouring towns of Ramleh and Ludd, a great number of oil-presses being found at the latter place in particular; soap is also made at Gaza and to a small extent at Jerusalem and Bethlehem. The output of all of these places taken together is, however, much less than that of Nāblus, the principal centre of the soap industry in Palestine (see Samaria). The olive oil, which forms the basis of the manufacture, is supplied locally only in part; the bulk is obtained from Samaria and a certain amount, inferior in quality, is imported from Mitylene. Jaffa and district according to English Consular Reports produce from 2,000–3,000 tons of soap in an ordinary year. The soaps of Jaffa, as well as those of Nāblus, are much esteemed in the Levant countries—in Egypt in particular.

(2) Wine making, perhaps the industry next in importance, is carried on almost exclusively in the Jewish and German colonies; see I.D. 1203. Around Hebron, grapes are largely dried for raisins.

(3) Sesame oil is produced at Jaffa and Jerusalem; there are two Jewish factories at the first-named place, working with hydraulic presses.

(4) Cabinet making, inlaid work, and the making of ornamental objects. Wood-work, inlaid with mother-of-pearl, silver, &c., is carried on by Jewish and Christian craftsmen at Jerusalem, as also the making of various articles

in olive-wood for use or ornament; to a lesser extent, this industry is also carried on at Jaffa and Gaza. Christian craftsmen of Bethlehem specialize in the making of rosaries, crosses, and other devotional objects and trinkets in olive-wood; they also excel in mother-of-pearl and metal work. Articles in glass—such as trinkets, rings in coloured glass worn by the women as ornaments, lamps, &c.—are made mostly at Hebron. The making of fragile vases and other ornaments in black stink-stone from the Dead Sea, is an industry confined to Bethlehem.

(5) Pottery of a rough but durable character, for domestic use, is made mostly at Gaza, from a local clay containing a good deal of iron. It is made at various other centres in Palestine, but the Gaza industry is by far the largest, and much is exported to countries of the Levant. Tiles and bricks were made before the war at the German Syrian orphanage in a northern suburb of Jerusalem, and, though of quality inferior to similar imported articles, they were cheaper and found a ready sale.

(6) Weaving of coarse cotton and woollen stuffs, for articles of dress worn by the fellahin, is carried on to a substantial extent at Mejdél (500 looms), and Gaza (50 looms). The cotton yarn is imported mostly from Manchester. Silk-weaving is also a small industry at Gaza.

(7) Leather tanning is carried on in the district of Gaza. Pack-saddles for camels and mules are made mostly at Bethlehem, and water-skins from goat hides in large numbers at Hebron.

(8) Irrigation pumps (as distinct from motor engines), were made at a German and a Jewish factory at Jaffa, which before the war produced 80–90 per cent. of the water-lifting plant required in the district.

(9) Quarrying and stone-cutting are carried on largely around Bethlehem. The building trade throughout the country draws largely from this locality both for materials and skilled masons.

(10) Salt, for the supply of eastern Judaea, is collected

mostly from pans on the north-western shores of the Dead Sea. The industry is a government monopoly, but much illicit production and smuggling are carried on.

Trade and Commerce

The bulk of the trade of this district (both export and import) centres on Jaffa; the remainder, a comparatively small export trade, is carried on at Gaza. A considerable proportion of the trade of Samaria formerly gravitated to Jaffa, but, since the opening of the Haifa-Der'a railway, the trend of Samaritan trade has been more towards Haifa.

The average value in round numbers of the direct trade of Jaffa and Gaza for the three years preceding the war (1911-13), the most recent years for which figures are available, was as follows: Jaffa: exports £750,000, imports £1,200,000, total £1,950,000. Gaza: exports £100,000, imports (mainly through Jaffa), total £100,000.

The trade movement of Jaffa is fully discussed in Chap. VIII pp. 294 ff., and the trade of Gaza has already been touched upon on p. 305. With further reference to the latter, it will be noted that by far the most important export of Gaza is barley (an average value of £80,000 for the years 1911-13). Other small exports for the same period averaged, in round values: wheat, £4,000; wool, £2,700; oranges, £2,600; poultry, £2,000; pottery, £2,000; melons and melon seeds, £1,400; dhura £1,300. Barley thus represents at least four-fifths of its entire exports. The amount, however, fluctuates very greatly from year to year owing to the uncertainty of the rains on which the crop is entirely dependent. Thus the amount available for export in recent years has been as follows: 1913, 18,400 tons; 1912, 8,000 tons; 1911, 8,000 tons; 1910, nil; 1909, 6,200 tons; 1908, 38,000 tons; 1907, nil; 1906, 35,000 tons. The barley, especially suited to brewing, is sent almost entirely to Liverpool, direct, by steamers which touch here after the harvest has been gathered. Most of the remainder of the export trade of Gaza is carried on with Jaffa and Egypt either by sea in coasting vessels, or

by land on camels. Gaza pottery, dhura and melons go largely to Egypt, wheat to other parts of Syria or Turkey, and wool to the United Kingdom. The export of oranges is insignificant in comparison with Jaffa. Gaza is a centre of trade in camels and the average number that passes yearly through this place is estimated at about 60,000, excluding those sold in Gaza.

The trade of Jaffa is at present hampered by the absence of good harbourage and landing facilities. The roadstead is exposed to the full force of the south-west winds which prevail during the winter months especially. Vessels have to lie from two to three miles off the shore, thus rendering the embarking of goods and passengers always more or less difficult and frequently impossible for long periods during rough weather. There were, for instance, in December 1913, twenty succeeding days during which communication with the shore was impracticable except on one day when the sea abated sufficiently to allow the mails to be landed. Gaza is also an open roadstead subject to swells and sudden and dangerous storms. In the barley season, the few steamers that call to take the crop lie some distance off the shore and lighters are employed to convey the cargo on board. It may be mentioned too that the town of Gaza lies about $2\frac{1}{2}$ miles from the coast and is connected with the landing-place only by a road, constructed in 1903, which in recent years has got covered with sand and has fallen sadly out of repair. Goods for shipment at Gaza are dumped on the open shore.

Jerusalem takes first place as an inland distributing centre of Judaea and receives a large proportion of the imports landed at Jaffa, both by rail and road (but mostly by the former), and the city supplies not only the country immediately around but also the district east of the Jordan in the direction of Salt and 'Ammān. Hebron is a less important and more local centre of trade carried on by road. Jerusalem and its neighbourhood produce little for *export*, as is shown by the comparatively small quantity of goods sent by rail to Jaffa, averaging (previous to the war) not more than 6,000

tons annually as compared with 35,000 tons of goods imported. There are industries at Jerusalem, but little is produced in excess of local requirements with the possible exception of flour, lime, devotional objects and souvenirs (the latter taken away by tourists) and a few other articles. Besides general commodities, the *import* of all kinds of building materials and all the necessities for house construction, except stone and lime, is a striking feature of the inward trade movement of Jerusalem and is due to extensive building operations—the erection of hospices, religious establishments and new houses—which is always going on. The trade of the locality, in normal times, was mainly in the hands of Jewish firms of Austrian, Russian, Italian and German nationality who dealt directly with foreign countries while more local business was carried on by Moslems and native Christian traders. The outward trade of Hebron (including Bethlehem) consists mainly of raisins, wine, and devotional objects and souvenirs in mother-of-pearl, metal and olive-wood.

Inhabitants

No reliable figures as to the present population are as yet available.

Estimates of the total population of the sanjaq of Jerusalem, embracing Judaea and a large part of the Southern Desert, are variously given as follows :

<i>Kazas</i>	<i>Cuinet</i> 1896	<i>Annuaire oriental</i> 1914.	<i>Ruppin</i> ¹ 1914.
Jerusalem (<i>merkez-liwa</i>) .	127,000	120,000	123,017
Jaffa	58,492	65,000	82,614
Gaza	62,474	58,212	81,490
Hebron	93,672	30,347	56,241
Beersheba	—	33,000	55,000
Total	<u>341,638</u>	<u>306,559</u>	<u>398,362</u>

¹ In *Syrien als Wirtschaftsgebiet*, Berlin, 1917, preface, August, 1916 ; by Davis Ruppin, who was travelling in Syria in 1915, and claims to have had access, by special sanction of Jemāl Pasha, to the best official sources for his information. Ruppin states that his estimates are probably 25 per cent. below the true totals.

According to Trietsch,¹ the population of approximately the same area is 382,061.

The population, according to categories, is given by Cuinet, 1896, as follows :

Moslems	251,332
Christians	44,389
Latins	24,793
Maronites	401
United Greeks	1,014
United Syrians	179
United Armenians	499
Syrian Jacobites	150
Orthodox Greeks	16,039
Armenians	715
Protestants	599
Jews ²	39,866
Foreigners ³	6,051
Total	<u>341,638</u>

The *Annuaire oriental* gives the following categories and figures : Turkish subjects (? Moslems), 200,305 ; Catholics, 63,000 ; Greeks, 15,000 ; Greek Catholics, 1,400 ; Armenians, 1,700 ; Protestants, 1,600 ; Jews, 45,000 ;² Copts, 2,000 ; foreigners,³ 8,000. Total, 306,559.

The most populous centres of Judaea are the following :

Jerusalem, pop. variously estimated at from 80,000 (Ruppin, 1914), to 110,000 (Trietsch, 1913), of whom, according to the

¹ In *Levante-Handbuch*, Berlin, 1914.

² These figures are now exceeded by the Jewish population of the city of Jerusalem alone. During the years immediately anterior to the outbreak of war, there was a marked increase in Jewish immigration, mainly from Russia and Poland, especially to certain centres such as Jerusalem and Jaffa. The Jewish population of Jerusalem is reported to have increased from 23,000 in 1888 to 65,000 in 1914, and of Jaffa from 1,000 in 1880 to 10,000 in 1914 (according to another source 15,000). In addition, during the period 1903-13, the population of the Jewish colonies in Judaea increased from about 2,700 to 5,500, the bulk of whom were immigrants. See further, I.D. 1203.

³ The figures given above do not take account of the pilgrims and tourists who come in great numbers to the various centres, especially Jerusalem and Jaffa, during the winter and early spring. According to the *Annuaire oriental*, 1914, the number of such people, coming to Jerusalem alone, amounts to 25,000 annually.

latter, 53,000 Jews, 16,000 Christians and the rest Moslems. The total population of Jerusalem is stated by one authority to have increased from 40,000, in 1888, to 100,000, in 1914.

Jaffa, pop. variously estimated at from 40,000 (Ruppín), to 50,000 (Trietsch, 1909), of whom 20,000–30,000 Moslems, 10,000–15,000 Jews.

Gaza, pop. 30,000 (Ruppín), 48,000 (Trietsch, 1909).

Hebron, pop. variously given at 20,000–25,000, of whom, according to Trietsch, 18,000 Moslems.

Bethlehem, pop. 12,000–16,000, almost entirely Christian.

Ramleh, pop. 7,000–10,000, of whom, according to Trietsch, 2,600 Christians.

Ludd, pop. 7,000.

Beit Jāla, pop. 4,500–6,000.

Mejdel, pop. 3,000–5,000.

Beersheba, pop. 3,000 (Ruppín, 1914); it was inhabited before the war by about 800 settled Bedouin.

The *sedentary* population of Judaea is confined almost entirely to the region W. and N. of the line indicated on p. 448, dividing the 'desert and the sown'. The *nomads* are found only on the eastern slope of the Central Range and on the confines of the Southern Desert. In comparison with the great tribes east of the Jordan, the tribes to be met with in Judaea are small numerically and unimportant from a political point of view. The migrations of these western tribes do not extend over large tracts like those of the Arabs farther east, but are confined to comparatively small areas marked by recognized boundaries. Among the tribes of the Judæan Desert, the largest number of tents in a camp is about 30, holding some 30 families or about 100 persons. The camps of the different tribes vary in form: those of the Ta'āmireh are usually rectangular, of the Jāhalīn, circular, and of the K'ābneh oval. Being small numerically, all the tribes avoid open places for their camps in order to be out of sight and for shelter from wind and rain; and they never camp quite close to their watering places in order to avoid strangers. Natural caves in the wādis are preferred to tents by some families,

as they afford better shelter and protection in this exposed region. There is little or no cohesion between the various tribes; were it otherwise they might be more troublesome to the governing authority and to the fellahin on their western border. Their water places are the few springs, such as 'Ain el-Qelt and 'Ain Jidi, to be found within the region, standing pools of rainwater, and cisterns roughly cut in the rock in the valley bottoms, all of which they jealously guard, but, in spite of this, with the exception of the springs, there are but few places where the water holds out through the year.

On the border between the cultivated land and the desert, the people tend to change their mode of life—the sedentary to become semi-nomadic and the nomadic to become semi- or wholly sedentary. Thus the people on the western edge of the Desert of Judaea go out into the desert with their cattle and live a nomadic life, as, e.g., the Ta'āmireh of the village of Beni Na'im and other places who were originally fellahin. On the other hand, genuine Bedouin in the desert region, as, e.g., the Rashā'ideh of 'Ain Jidi, remain so long in certain places as to become almost sedentary.

The following are the chief tribal families to be found in Judaea :

Ta'āmireh. Range, Teqū' to the Dead Sea. About 7,000 souls; the most numerous of the tribes. 3,000 sheep and 2,000 donkeys and a few cattle and camels. Semi-settled cultivators for the most part, as well as carriers and contrabandists; they wander to Mādeba for hire. Among their watering places is Mutukh Hasāsah, a rain-filled pool in W. Hasāsah.

Jāhalin. Range from Wādi el-Ghār to Tell 'Arād and Wādi Zuweireh. According to Musil, some 50 families. Their chief watering place is the very fine spring in Wādi Umm Bagheq.

Dhullām. Range, south of the Jāhalin, between Beersheba and the Dead Sea; see further, p. 471.

Rashā'ideh. Range round the spring of 'Ain Jidi which they own. Now a small and insignificant tribe, said to be under the protection of the Ta'āmireh; formerly much more

numerous and important, but a great many were done to death during the Egyptian control of Palestine, 1831-40.

K'ābneh. Range the desert between the Jāhalīn *dīra* and the Dead Sea, south and west of Wādi el-'Areijeh. Some 150 souls with about 50 tents (Conder).

Abu Naseir. Range the hill-country round Wādi el-Qelt and parts of the Ghōr around Jericho. Watering places at 'Ain el-Fārah and 'Ain el-Qelt.

'Abbeidiyeh. A small tribe living in Wādi en-Nār around Mār Sāba and, according to Schwöbel, under the protective control of this monastery of Mār Sāba.

Gedeirāt. A small tribe ranging the desert E. and NE. of Beersheba.

Teyāhah ; see Southern Desert, p. 471.

THE SOUTHERN DESERT

This most southerly section of West Palestine extends between the line drawn through Beersheba, indicted on p. 428, and the Turco-Egyptian frontier line from Rafah to the Gulf of Akaba ; on the west it is bounded by the Mediterranean, on the east by the Wādi 'Arabah. The northern frontier as it at present stands is purely artificial ; geographically the longitudinal division of the surface characteristic of the country to the north (see Judaea) continues to the neighbourhood of the Red Sea gulfs.

The greater part of the Southern Desert belongs to the sanjaq of Jerusalem, but all that lies east of the Mediterranean-Red Sea watershed is included in the Kerak sanjaq of the vilayet of Damascus, see Chap. VI, p. 240.

The area thus outlined may be subdivided into three parts, in accordance with the above-mentioned longitudinal division : (1) the Coast. (2) the Maritime Plain. (3) the Central Range.

The Coast

The coast is a narrow strip, mostly of firm sand, between the sea and a line of sandhills extending, with only two

interruptions, from beyond the frontier to Gaza. This zone in places attains a height of over 200 ft., and has a maximum breadth of 3 miles between Rafah and Khān Yūnus, narrowing to 2 miles near Gaza. The first of the two breaks occurs opposite Deir el-Balah, where the width of the dunes contracts to $\frac{1}{4}$ mile: in this neighbourhood the Wādi Selqi cuts its way through to the sea, and there is some low ground, known as Sabkhet ed-Deir. The second is the larger interruption at the mouth of the broad Wādi Ghazzeh, $4\frac{1}{2}$ miles south of Gaza. Running thus in long stretches unbroken for many miles, the zone of sandhills interposes a distinct obstacle to approach from the sea. A caravan track, generally much used by Arabs, but often washed by the sea, runs from beyond the frontier (El-'Arish) to Deir el-Balah, where it turns inland to the village. Water can be obtained along the beach in places by digging to a depth of 6–8 ft. (especially north of Deir el-Balah).

The Maritime Plain

This plain, including the foothills transitional to the higher country, extends inland for the better part of 30 miles. In the south-west corner of this area, from the neighbourhood of Khalasah along the foothills to the Egyptian frontier, and northwards to Ed-Dabbeh (square M. 21 on the Rafah sheet of the Sinai 1 : 250,000 map, 10 m. SSE. of Rafah) there are great tracts of dunes, which over the greater part are soft and high (some 50 ft.), and are only bound with scrub and of hard consistency along a northern fringe or zone 4–5 miles wide. The soft dunes, setting approximately E.–W., present serious obstacles to traffic going N.–S.; but they are traversed at the broadest part by the Darb ez-Zöl running from Muweileh to Khān Yūnus, a route often used by the Bedouin caravans, and by other tracks. The hard dunes, which are lower, and interspersed with occasional patches of cultivation, offer no difficulty to pack animals travelling E.–W.; it is doubtful, however, whether light carts could pass them except along worn tracks. Both types of sandhills extend far across the

Egyptian frontier, and the tracts which they cover in Syrian territory are merely the continuation of a greater westerly expanse. The greater part of the plain is stoneless, and has an undulating surface of sand and earth which can be traversed in any direction by carts and motors. It is fertile, and cultivated almost the whole way from Gaza to Beersheba, and for a considerable distance south and south-east of Rafah. The only natural obstacles are the beds of wādis, which are often deep with abrupt sides. The chief of these is the Wādi Ghazzeh in the north-east, rising in the hills south-west of the Dead Sea, and during its long course known in its upper reaches by various local names, Wādi es-Seba', Wādi Shanaq, and Wadi esh-Shellāl. Its banks are steep from about a mile south of the Gaza road crossing to $1\frac{1}{2}$ mile west of Shellāl, a total distance of about 10 miles, in which there is only one important crossing at Tell Jemmeh. Its chief tributaries, the Wādi esh-Sheri'eh and Wādi Muleih (or Imleih), present similar features, and all, after heavy rains, may run in flood for periods ranging from six hours to three days. At such times the surface of the plain and of unmade tracks is slippery and difficult for camels. After the outbreak of the war the Turks constructed metalled roads between important points, for example between the railway station at Sheri'eh, south-east of Gaza, and the Wādi Ghazzeh at Shellāl.

As the maritime plain extends inland, it gradually passes into a barren limestone plateau, the surface of which is often strewn for miles with flints tinted a deep ruddy brown, and so polished by sand-bearing winds as to have the appearance of being wet with dew. It should be noted that any excavation in these flint-strewn tracts is conspicuous, the limestone subsoil showing up white against the exceedingly dark surface. Yet further inland, the plateau gradually merges into undulating ridges with intervening hollows, the ridges having hard rock very near the surface. They increase in size, and are often littered with loose stones until, some 25 miles from the coast, they meet a small chain of steep sharp limestone hills extending NNE. between El-'Auja and Beersheba, and

connected with the higher mountains by low saddles across which run the inland roads between Palestine and Egypt. These hills and saddles form the transition to the Central Range.

The Central Range

The range, continuing the high country of Judaea, runs in the general direction NE.-SW., to traverse almost the whole breadth of the Sinai peninsula. It consists of detached heights, or groups of heights, of which the greater are elliptical in outline, originally round-topped and much hollowed by erosion, the lesser, isolated plateaux with abrupt sides, against the foot of which talus has collected; the whole area is desolate; large regions are filled with petty hills and shallow valleys, forming an intricate monotonous landscape extremely inhospitable of aspect. Following the main crest, which runs at a distance of 20-30 miles from the 'Arabah, and two or three times as far from the Mediterranean, we find the altitudes rising both from north and south to mountain masses south-east of Kosseima (Qoseimeh), about midway between the Mediterranean and the Gulf of Akaba, where the chief summits are Jebel Kharūf (3,262 ft.), Jebel Lussān (3,140 ft.), and Jebel Maghāreh (3,040 ft.). From this middle point the crest runs south to Jebel Samāweh (3,329 ft.), and afterwards a little west of south to Jebel el-Junna and other mountains in Egyptian territory; towards Judaea, it is marked by the ridge of Tāreh Ramān, Jebel en-Nafkh, Jebel Haleiqīm, Jebel Madheifi, Jebel Majrūn, and Ras Zuweireh, the last rising eight miles from the west shore of the Dead Sea, and due east of Beersheba.

The Central Range falls by broad steps to the 'Arabah, which it finally reaches as a broken and often precipitous escarpment, everywhere of considerable height except along the Akaba-Dead Sea watershed (30° 08' to 30° 14' N. lat.), where it ceases to form a conspicuous wall (see p. 661). The system is almost wholly limestone. Only towards the south end of the escarpment do other formations appear (sand-

stone, granite, porphyry, diorite); on the Kosseima-Akaba road the transition from cretaceous to other rock occurs in the neighbourhood of Jebel Hamra, some 20 miles NW. of Akaba.

The water-courses east of the range are more numerous and more important for the traveller crossing the peninsula than those on the opposite slope; on this side there is no plain permitting freedom in choice of direction; a difficult broken country must be traversed along the rare lines which practicable tracks can follow, and these are in many cases determined by the courses of the wādīs. The chief among the eastern water-courses, the Wādi Jerāfi, rises far beyond the Egyptian frontier in a latitude south of Akaba, joining the Wādi el-Jeib (here Wādi el-Ghamr) north of the Dead Sea-Akaba watershed. Its principal affluent, the Wādi el-Heyāneh, runs for a long distance parallel to it on the SE.; the Wādi Jerāfi and Wādi el-Heyāneh at their junction enclose the plain of Bāhah, an important resort of caravans.

The Wādi Ramān rises by the Naqb el-‘Arūd near the nodal point of the main watershed, running first NE. through a valley with precipitous sides, then SE. through a long gorge to enter the main Wādi of ‘Arabah, here called Wādi el-Ghamr, under the name of Wādi Merzebeh.

The Wādi Fiqreh, rising from Jebel el-‘Ajrem, in the same region as the Wādi Ramān, is known in part of its upper course as Wādi en-Nafkh. After turning the hill of ‘Abdeh it is successively called El-Murrah and Wādi el-Madra, and narrows to a deep gorge, running ESE. and NE., its valley in the latter direction broadening but still preserving its steep flanks. After the junction of Wādi et-Tabbān on its r. bank, there is on the right, between it and the Wādi el-Jeib, an almost impassable region of limestone fissured with steep gorges; it finally flows through the Ghōr into the Dead Sea.

The chief water-courses of the Mediterranean slope, the Wādi Ghazzeḥ and its affluents, have been already mentioned, p. 464. The only other wādi on this side which need be noted is the Wādi Hafir, the main eastern tributary of the Wādi el-

‘Arīsh, which runs for some miles near the Egyptian boundary in the region of El-‘Auja. Known at first as the Wādi ‘Ajrem, it rises in the central mountain mass, not far from the head of the Wādi Fiqreh, to run in a north-westerly direction past El-‘Auja ; soon afterwards it receives the Wādi Abyadh from the east, and crosses the frontier, to be known henceforward as Wādi el-Azāreq.

Water-supply

Although the area is poor in water, its supplies are not inconveniently situated, and the distances between wells are seldom great. There is nothing which can fairly be described as a perennial stream, unless the scanty brooks formed in the extreme lower course of the Wādi Ghazzeh, or further up, south of Shellāl, can be held to deserve the name ; but the winter rains which cause the wādis of the western slope to run in flood several times in the wet season, leave behind them pools which may yield water for a considerable time, and the coastal tract is comparatively rich in water.

Many miles inland a line of important wells runs parallel to the Central Range at the foot of its western slopes (Beer-sheba, Khalasah, Raheibeh, El-‘Auja, Muweileh, Kosseima), most of them at road junctions, since from very ancient times they have attracted to themselves both the routes between Egypt and Palestine and those crossing at right angles on their way south-east from the Mediterranean. Attention may be drawn here on the exceptional importance to hydrography of the centrally situated Kosseima region. This district is perhaps the only part of interior Sinai where a considerable force could be continuously supplied without carrying water from an excessive distance. Within a radius of a few miles there are four perennial sources : Kosseima itself (1,000 camels a day) ; Muweileh, 3 miles to WNW., with permanent pools supplying 2,000 camels ; ‘Ain Ghadeirāt, 4–5 miles to SE., with an unlimited supply ; and ‘Ain Qadeis, 6 miles further in a direction E. of S., with water for 1,000 animals. Of these sources, ‘Ain Ghadeirāt, locally known as

‘Ain el-Meffir, is at once the most copious and the least visited ; though it has been described as the richest spring in Sinai, it lies apart from all the roads. It is situated a mile up the Wādi ‘Ain Ghadeirāt, a tributary of the Wādi el-‘Ain, which is passed on the left a couple of miles after leaving Kosseima by the Akaba road. Ascending the larger wādi for a mile, the track to the spring takes a sharp turn to the left into the mouth of the Wādi ‘Ain Ghadeirat, partly choked by débris and boulders. The spring lies 2 miles up the valley, gushing strongly from fissures in the limestone in three jets each as thick as a man’s arm. It forms a brook, running for some distance down the valley, and used by the Bedouin for irrigating crops of barley. The place has a bad name for fever in the summer months ; but it could probably be made healthy by destroying the mosquitoes which breed in the pools, as the altitude is about 1,500 ft.

Flora and Fauna

Grass grows on the plain in spring, but the chief wild growths of the region are the various scrub bushes of the wādi beds : *tarfa*, eaten by camels but not nourishing, and burning too fast to make good fuel ; ‘*ausej*, with edible red berries ; *ratam*, a kind of white broom, comparatively slow in burning, and yielding an indifferent charcoal ; tamarisk, also serviceable for camp fires. ‘ In the winter season travelers in Sinai can always have a fire to warm their camps ’ (Lawrence and Woolley). Such trees as exist beyond the plain are chiefly acacias, found more especially in the basin of the Wādi Jerāfi. Palms in this region occur only in the coastal zone.

The wild animals include wolves ; hyenas, jackals, and the grey desert hare. Vultures are the most conspicuous birds ; only sea fish are known.

Climate

The climate in the interior of the western area is more subject to extremes than that of the coast. Winter lasts from

November to February, and is often very cold, with nocturnal frost and violent winds from different points of the compass. Rains begin early in December, and are usually heaviest in February; they are always intermittent, and sometimes almost entirely fail, as in 1911, 1912, and 1913. In spring heat and cold alternate, and there is occasional rain and sleet, but the heat soon prevails: 'February's green vanishes under the suns of March'. From May onward the heat is intense until September, and no rain falls; at this period of the year mirage effects are frequent, distant objects seeming more remote than they are, and depressions appearing pools or lakes. In October days are hot and nights cold. For data of the character of the climate of this region, see under El-'Arish, Chap. II, pp. 52 ff.

Communications

It has been indicated that through so rugged a barrier as the Central Range roads easily passable by laden camels are few; fewer still are those which, over their entire length of the greater part of it, can be made passable by wheels. Of the latter class there are in fact only two: (1) the road through the central Naqb el-Gharīb pass, south of Khalasah, above the convenient Wādi Marrah; (2) the road to Akaba by Kosseima, which, turning the chief mountain mass, has no pass to cross before the *naqb*, or pass, down the escarpment near the head of the Gulf.

Two other through tracks are partly practicable for wheels: that running eastward from Beersheba, and reaching the Ghōr through the pass of Zuweireh; and that coming down from Beersheba to Qōz 'Ain Hosb through Sirr, Qurnub, and the Naqb cs-Sefei, where the whole section south of Qurnub is impossible for wheels. These four roads are the chief approaches by which Edom, Arabia, and Moab may be entered from the Mediterranean plain; from their terminal points in 'Arabah, connecting tracks lead by the Wādi Yitm, by Petra, and by the Wādi Dākhel to the Hejaz road and railway. The passes on these roads would become important

to the defences of an expanded Egypt, should the present artificial frontier be moved north across the desert, and with them various points on the western side of 'Arabah (see p. 665 f.).

Inhabitants

The inhabited places, exclusive of mere military or police posts such as Rafah or El-'Auja, are confined to the neighbourhood of the sea, from which none are distant more than 5 miles; the whole region between the Mediterranean and 'Arabah, some eighty miles across, is uninhabited except by a few nomads. The few settlements, from south to north, are: Khān Yūnus, Beni Sel'a (or Suweileh), 'Abesān, and Deir el-Balah. All are agricultural villages of fellahin with wheat and barley fields, fig trees, date-palms, and vegetable gardens: tobacco is grown at Beni Sel'a. The population of these places is variously given; the largest is Khān Yūnus, which has been described at different times as possessing 5,000 and 600-700 inhabitants; the smallest is 'Abesān, with some 50 huts. There is wide cultivation of wheat and barley on the maritime plain, the fields extending almost the whole distance from Gaza to Beersheba, and for miles east of Rafah and Khān Yūnus, patches of cultivation being found even among the interior sandhills. In normal times considerable supplies of grain might be obtained; but Turkish requisitions of grain and labour since the beginning of the war must have exhausted accumulations and largely diminished the output. A little cultivation of cereals is found far inland beyond the limits of the plain, generally along wādīs or near wells, as, for instance, in the plain round Tell el-Milh, in the Wādi Umm Hallūf, and near Bir Mayein. But these scanty fields are the result of sporadic efforts, and depend on uncertain rains; the above-mentioned valley of 'Ain Ghadeirāt appears to be the one example of irrigation. The general conditions are indeed too unfavourable to encourage permanent settlements, or the transformation of Bedouin into fellahin as witnessed east of Jordan and the

Dead Sea. Systematic terrace-culture, of which the traces still remain near the ruined Roman and Byzantine sites (e. g. 'Abdeh), is beyond the efforts or desires of a scanty and careless population.

The inhabitants of the cultivated districts are Bedouin, in no way formidable to armed men. The Terābīn, whose *ḍīra* begins as far west as the Gulf of Suez, range the country east of the Rafah and Gaza plains. The Teyāhah are next to them, beyond the line Beersheba-Raheibeh-Kosseima. East of the Teyāhah are the Dhullām, who haunt the hilly desert between the Wādi el-Milh in the north, and Jebel Lussān in the south. The 'Azāzmeh intersect the Dhullām, ranging across the Wādi Marrah from NW. to SE. The *ḍīra* of the Sa'īdiyīn, south-east of the 'Azāzmeh, extends into and crosses 'Arabah. With the exception of the Terābīn, the Bedouin form small and weak communities. Sinai has indeed been described as the unenvied resort of defeated tribes too weak to face the strenuous life of the greater deserts.

In former years travellers have reported trouble with the Arabs, usually at wells or ruined sites regarded as sacred; Musil had frequent disputes with representatives of different tribes, and encountered a heterogeneous armed band in the frontier region not far from Kosseima. The establishment of Egyptian posts had probably made brigandage less profitable even before the war; while as regards relations with the Bedouin, difficulties may have arisen as much from an imperfect appreciation of Arab character as from any other cause. During the survey, Capt. (now Lieut.-Colonel) Newcombe established the most friendly relations in every district by getting to know the sheikhs, giving no presents, and refusing to pay blackmail. The result of this method was that all the tribesmen proved 'ready to act as guides or emergency helpers, very hospitable, and most scrupulously honest' (Lawrence and Woolley).

CHAPTER XV

SAMARIA (INCLUDING CARMEL)

AREA

BOUNDED on the west by the Mediterranean Sea and on the east by the middle course of the R. Jordan, Samaria has its southern frontier conterminous with that of Judaea; see p. 428. On the north, the boundary, for the purpose of this handbook, is considered to run along the southern edge of the Merj ibn 'Āmir, or plain of Esdraelon, at the northern foot of Carmel to near Jenīn, when it turns northward, passes round the sharply marked escarpment of J. Fuqū' (Mt. Gilboa) spur, and thence runs east by south along the Jālūd valley to the Jordan. The plains of Esdraelon and Jezreel are thus not counted to the district of Samaria, while the plain of Beisān falls just within its borders. These limits enclose a territory roughly rectangular in shape, with a big dent on the northern side, some 40-42 miles in length from north to south and about 36 miles from east to west—or roughly an area of 1,600 sq. miles.

Administratively, Samaria as here delimited formed a part of the vilayet of Beirut. It includes the whole of the sanjaq of Nāblus (composed of the merkez-kaza of Nāblus and the kazas of Jenīn and Beni Sa'b), and most of the kaza of Haifa, of the sanjaq of 'Akka.

PHYSICAL FEATURES

Relief.—Judaea and Samaria, halves of the same mountain range, present the same broad physical features; see p. 427 f. There is the central plateau flanked on the western side by the maritime plain and on the east by the Jordan Ghōr. But, while the highlands of Judaea form a more or less

compact mass, presenting the aspect of a single mountain *massif*, the Samaritan section of the range, especially towards the north, becomes more strictly a succession of high plateaux and terrace-like slopes and finally, in the extreme north of the district, gets broken up into more or less isolated groups of hills interspersed with plains. Judaea is a dissected plateau of hard horizontal limestone while Samaria is a mountainous region of gently tilted strata of varying hardness declining gently northward, with the result that the land of Samaria is of a much more open character than that of Judaea. The transition from the Judaeian plateau to the Samaritan mountains is not sufficiently pronounced to indicate any inevitable physical boundary between the two districts. The eastern slope of the district is not nearly so deep as in Judaea and is not so well watered as the western slope ; but is far from being an absolute desert like that of Judaea.

The highlands of Samaria extend northward in two prominent spurs of Carmel and J. Fuqū'. The former runs as a long straight ridge from SSE. to NNW., about 15 miles in length until it terminates in a high promontory on the coast of the Mediterranean, forming the southern headland of the Bay of 'Akka. The ridge of Carmel is connected with the main hills of Samaria by a range of lower rounded hills, the Belād er-Rūhah, about 10 m. in length separating the plain of Esdraelon on the NE. from that of Sharon on the W. ; see further, pp. 500 ff., for physical features of Carmel. The other and much shorter spur of J. Fuqū' protrudes some 5 or 6 miles towards the Esdraelon plain where it terminates in a steep and almost bare wall of rocks.

The chief summits of the Samaritan highlands, naming from the south, are : Jebel et-Tōr or Mt. Gerizim (alt. 2,849 ft.) and J. es-Suleimiyeh (Eslāmīyeh) or Mt. Ebal (3,077 ft.) on the south and north side respectively of Wādi Nāblus, Sheikh Beyāzīd (2,375 ft.) north of Sebastiyeh, Ras-el Aqra' (2,230 ft.), and Ras Ibzīq (2,404 ft.) north of Tūbās, all elevations of the main watershed ; J. Abu Madwar (1,648 ft.), the highest point of the Fuqū' spur ; J. Iskander

(1,699 ft.), in the Belād er-Rūhah; and Qamū'at ed-Durziyeh (1,808 ft.), the highest summit of the Carmel ridge.

From the elevated lands forming the highlands of Samaria, emerge valleys leading down west, by long easy gradients, to the Plain of Sharon and east, by shorter deeper and more abrupt courses, to the Jordan.

On the western slope, the broad W. Nāblus is the principal and most well-marked of these valleys; others are W. Selhab, W. et-Tīn, and W. Qānah. For further details of the western slope, see Coastal streams, pp. 478 ff.; and for details of the principal wādis of the Carmel Ridge, see p. 501.

On the eastern side, the principal wādis, many of which carry permanent streams, are W. el-Hamra, W. Shūbāsh, W. el-Khashneh, W. el-Mālih, W. el-Buqeī', W. Fār'ah, and W. el-Humr. Of these W. el-Mālih and W. Fār'ah alone call for special mention. The former with its two main branches W. el-Hirreh and W. edh-Dhuba' has its head in that section of the watershed which lies around Ras el-Aqra'. The wādi takes its name from a copious saline spring, 'Ain el-Mālih, and it forms an important line of approach to Beisān from Nāblus. W. Fār'ah, carrying the trunk road from Nāblus to Salt and the Belqa is by far the most important affluent valley of the Jordan in this district. It carries a strong perennial stream which derives its waters from a number of springs, the chief of which is 'Ain el-Fār'ah, south of Tūbās. The head of the basin of this wādi is a semi-circle of hills running from Tūbās to J. et-Tōr and, after a south-easterly course of about 30 miles, the wādi leads into the Jordan under the name of W. el-Jōzeleh. The only tributary of the Fār'ah of importance is W. Bilān or Bidān, a deep and narrow chasm joining from the south and bringing its quota of water to the main stream. Some distance below the junction, the main stream flows through a basin of meadow-like land where it is bordered, as well as in spots lower down, by a dense growth of oleanders; then follows a section in which it descends among precipitous

rocks ending in a narrow gorge; below this the valley gradually broadens to form a rich plain, known as the Qarāwa. Finally, at the bluff of Makhrūq, it emerges on the Ghōr and, the stream, now much reduced in volume by the irrigation of the Qarāwa, takes a sinuous course southward to enter the Jordan a few miles south of the Dāmīeh ford. In its short course, the wādi descends from an altitude at its head of about 2,240 ft. above sea-level to 1,160 ft. below sea-level at its outfall into the Jordan. The fall in the upper valley is about one in twenty and in its lower part about one in seventy.

Plains. (a) Interior, (b) Maritime

(a) Within the relatively loose mass of the northern part of the Samarian hills are a number of plains and spacious valleys. On the north, in the gap between Carmel and Fuqū', a broad arm of the Esdraelon Plain penetrates for 7 miles to Jenīn and thence a succession of level and more or less connected tracts spreads southward to within a few miles of the southern boundary of the district. First, going southward, comes the Sahel 'Arrābeh, or plain of Dōthān, separated from the Plain of Esdraelon by a narrow tract of rolling land, through which pass one or more valleys draining the northern part to Esdraelon, while the western part is drained by W. Selhab into the N. el-Mefjir. The plain from N. to S. measures some 6 miles in length and, in the broadest part, stands Tell Dōthān. Not far to the south-east is spread out another plain or elevated depression, the Merj el-Ghuruq, oval in form, 3-4 miles in diameter and surrounded by hills. It is perfectly level with an alluvial soil of rich dark loam and has no visible outlet for its waters which, therefore, in winter, collect upon it and form a temporary lake or marsh so that during a great part of the year it is not available for crops. It is in fact a lake which has gradually been filled up by the débris of the surrounding heights. Next follows a series of smaller plains running south, past Wādi Nāblus to the Sahel el-Mukhneh. This fine plain runs for 8-9 miles from NNE. to SSW. along the eastern base of J. es-Suleimiyeh

and J. et-Tōr with an average breadth of $1\frac{1}{2}$ –2 miles, being narrow in the north and south and broader in the middle. At about one-third of its length from the north, W. Nāblus comes in from the west. The hills on its eastern side are low but rocky and often project into the plain, and, directly opposite the Nāblus valley, an offset or arm—the Plain of Sālim (3 miles by $1\frac{1}{2}$ mile)—runs up at right-angles among the eastern hills. The Mukhneh plain is drained mainly by W. Qānah, and the plain of Sālim by W. Bidān affluent of W. Fār'ah.

The Plain of Beisān, which calls for special notice, may be said to extend from the Nahr Jālūd to Wādi el-Mālih (see p. 474), a distance of 11 miles. The valley of the Jordan here undergoes a great widening which commences at the outfall of the Jālūd into the R. Jordan and thence stretches westward along the foot of the hills on the north of Beisān and up the Jālūd valley, to the waterparting between it and the Plain of Esdraelon, about 15 miles from the Jordan. On the south side of the Jālūd valley the plain is bounded by J. Fuqū' until it comes to about 3 miles west of Beisān when the mountain range turns to the south and forms the western limit of the plain of Beisān. For about 7 miles south of the N. Jālūd, the plain is 6 or 7 miles wide; beyond this, low hills advance suddenly and reduce it to a width of about 3 miles at its southern end.

An abrupt rise takes place in the plain, occurring along the whole length of the broad part from the N. Jālūd and Beisān on the north towards the advancing hills on the south, and it lies about midway between the Jordan Zōr and the foot of the western mountains and parallel to them—the plain is thus on two levels. The height of this remarkable bank amounts to 400 ft. or more and it appears to be the proper limit of the western Ghōr at this point. The village of Beisān lies on its edge and so does the road which connects Beisān Nāblus.

The Plain of Beisān is a tract of great agricultural possibilities, now given over mostly to wild and rank vegetation.

It is intersected by an abundance of irrigation channels spread nearly all over the upper (western), and lower (eastern), terraces, most of them now derelict but some still partially in use. The channels derive their water from the N. Jālūd and from numerous springs and brooks that descend from the hills. From these sources, several streams pass from the upper to the lower terrace and from the latter to the Jordan ; as many as six permanent streams thus finding their way across the plain to the river.

All over the upper and lower terraces of the great plain, the soil of which is very rich, numerous *tells* or mounds are distributed ; they are the sites of ancient habitations and are evidence of the former populous character of the region and of high development of productive industry. Much sugar-cane and cotton were formerly grown in the plain of Beisān.

(b) The maritime plain of Samaria, continuation of that of Judaea, extends along the whole length of the coast and is cut through by a number of stream courses, outlets of wādi basins (see below, pp. 478 ff.). Along its southern half it has a uniform width of about 9 miles. At the Nahr ez-Zerqa it suddenly narrows to about 2 miles and continues as a gradually narrowing strip northward to the headland of Carmel where it measures but a few hundred yards across. The wider part of the plain between the N. el-‘Auja and the N. ez-Zerqa is known as the Plain of Sharon. Of this, the southern section is much diversified by groups of low hills ranging up to 300 ft. in elevation ; the northern part is more uniformly level and open. The soil of the plain proper is mostly a red sand and is very fertile. That part of the plain to the east of Qaisārīyeh, between the Mefjir and Zerqa was once covered with an open forest of fine oak-trees, but this woodland has now almost entirely disappeared. On the coast side, the whole plain from the Carmel headland to the extreme south is bordered by a well-marked line (sometimes a double line) of dunes which, in places, extend some miles inland and, in others, are much narrower. Formed originally of fine drift

sand, these dunes have become petrified and the stone is much used locally for building purposes.

The crops of the plain are chiefly cereals, sesame, and melons, with orange and other fruit plantations in the Jewish colonies. Fat-tailed sheep in great numbers, black goats and small red oxen find good grazing. In former times, many spots along certain of the coastal streams were canalized for irrigation, the surplus waters being drained off by artificial cuttings through the solid rock of the dunes near the sea. These ancient irrigatory systems have been destroyed and the outlets are partly choked up so that extensive and unhealthy swamps have formed in several places. Where Jewish colonies have been established in the plain these swamps have been partially drained and extensive groves of eucalyptus trees planted.

For details of the section of the plain north of Sharon, see Carmel p. 500, and for the description of the coastline of Samaria see Judaea, p. 441 f.

Coastal Streams and Wādi Basins.

These streams form the outlets of the various intricate wādi systems of the western slope of the Samaritan highlands and are here treated in order from south to north.

(1) The *Nahr el-Fāliq*. The basin, of which this short stream is the outlet, is restricted to a small section of the maritime plain lying between the village of Tīreh and the coast; it does not extend inland to the mountains. The basin extends for about 10 miles along the coast, north and south of the old harbour of Arsūf, and its greatest depth inland scarcely exceeds 7 miles. The perennial stream, not more than $1\frac{1}{2}$ mile in length and only a few yards wide, drains a marshy depression of considerable area known as Birket Ramadhān or Basset el-Fāliq situated east of the dunes through which latter it runs in a deep narrow cutting in the calcareous sandstone, 40 metres in length. The marsh is one of the largest of its kind in Palestine; aquatic birds are very numerous in its vicinity. There is a belt of sand at the stream mouth.

(2) The *Nahr Iskanderūneh* enters the sea at Mīnet Abu Zabūra, 7 miles south of Qaisāriyeh, and receives the western drainage waters of the Samarian watershed between Yāsīd and J. et-Tōr. On the south, the basin is partly conterminous with that of the 'Auja, described under Judaea (p. 438 f.), and partly with that of the Fāliq. The principal channel is the important W. Nāblus (known in its lower course as W. Zeimer), which takes its rise at Nāblus and forms the main pass across Samaria, being prolonged on the eastern slope by W. el-Fār'ah. Up this wādi runs the Jaffa-Nāblus carriage road. W. et-Tīn, the principal southern branch, rises in J. et-Tōr and, after a winding course, enters the plain south of Tūl Keram when it joins W. Qalansaweh, which latter runs into the main wādi some 10-12 miles above its mouth.

The P. E. F. map shows the Iskanderūneh as perennial up to the junction of W. Qalansaweh. Dalman, however, states that there is no constant flow of water above a point just east of Tell Madd ed-Deir where, some 4-5 miles from the coast, the channel makes an almost retrograde bend from S. to NW. At the base of this hill is a strong source, 'Ain Madd ed-Deir, which is indirectly connected with the river and, from this point, he says there is certainly connected water to the coast, for, in rainy years, throughout the summer, the whole district round about, on the eastern side of the dune, is a marsh, with a large area of water in the middle. The spring and marsh therefore appear to be the never-failing source of supply to the river. In summer, when the water is low, a sandbar prevents an actual outlet to the sea.

The same writer says that the name 'Iskanderūneh' is unknown locally. The river channel is called W. el-Hawārith by the Hawārith Arabs who people the district and this name appears to be current upstream as far as Burj el-'Atōt, some distance up W. Qalansaweh. The stream is also locally known as El-Mefjir el-Qibli, (the southern outlet), to distinguish it from the other Mefjir, to the north.

(3) The *Nahr el-Mefjir* runs into the sea $2\frac{1}{2}$ miles south

of Qaisārīyeh and is the outlet of a considerable basin embracing a system of wādis which have their main heads on the Samarian watershed between Ras Ibziq, Ras el-Aqra' and the village of Yāsīd. The principal channel of the Mefjir basin takes its rise near Ras el-Aqra'. Known at first as W. Selhab, it passes through the plain of 'Arrābeh, when it takes the name W. el-Ghamīq and then Abu Nār. Passing between Jetta and Bāqa and soon after entering the plain, it takes the name W. el-Mālih and then W. el-Khudheireh where a permanent stream begins and runs to the sea under the name Mefjir. A considerable affluent valley, W. er-Rōz, joins W. el-Mālih from the south, while the most considerable branch from the north is W. 'Ārah, along which runs an important road from the maritime plain to that of Esdraelon at Lejjūn. The basin of the Mefjir is considered to include within its limits the remarkable inland depression Merj el-Ghuruq, see above, p. 475.

'Mefjir' (the outlet), is the name by which, according to Dalman, the stream is ordinarily designated by the neighbouring inhabitants, but he suggests that W. el-Khudheireh is the correct name.

The Survey Map shows the Mefjir as perennial for a distance of 8-9 miles, as far up as Tell edh-Dhrūr just E. of the Jewish colony of Khederah, but, according to Dalman, the permanent water-course is not more than 4 miles in length and begins only near Sheikh Helu, a calcareous sandstone-hill situated on the south bank just above where a rapidly flowing rivulet from the Basset er-Rishāsh marsh empties into the main channel from the north. Immediately below Sheikh Helu, the stream is 4-4½ yds. in width, but after piercing the dunes it rapidly broadens to 10-12 yds. and is then considered uncrossable even at the end of the dry season. In spring, the stream becomes very full of water and boats can pass up it for some miles above Sheikh Helu, as far as the bridge which carries the wheel-road from the Jewish colony of Khederah to the colony of Zimmārīn. A strip of dark-coloured cultivated soil lies

along the north bank of the stream to the point at which it breaks through the dunes. The mouth of the river is closed by a sandbar by which the coast road crosses.

(4) The *Nahr ez-Zerqa*, or Crocodile River, running into the sea about $2\frac{1}{2}$ miles north of Qaisāriyeh, drains a northern portion of the Belād er-Rūhah and Plain of Sharon and a small part of the southern Carmel area. Its principal feeder is W. es-Sindiyāneh in the north, to which just under the bluff of Khashm en-Nadhir unites another considerable arm from the south. W. es-Sindiyāneh, according to Von Mülinen, carries perennial water from 'Ain Meyyiteh and other springs situated some 8 or 9 miles from the coast, and the southern branch for about 2 miles above the junction. The Zerqa is crossed by an old stone bridge at Tāhūnet Abu Nūr, and by another stone bridge built in 1898 close to its mouth. Between the two bridges, a stone dam forms a large pool and carries a track from Qaisāriyeh to Tantūrah across the river. Below the dam the river runs in a strong stream to its outlet. North of the Zerqa, to as far as the N. ed-Dufleh, and on its southern bank are extensive and unhealthy marshes much overgrown with tall canes, papyrus and tamarisk.

(5) The *Nahr ed-Dufleh*, or Oleander River, the smallest of the coastal streams, is the estuary of W. Fureidis, an important wādi of southern Carmel. It has its main heads, W. esh-Shaqqāq, Fūwār, and Khalīl, in the Belād er-Rūhah, near the village of Dāliyet er-Rūhah and, after entering the Carmel area near Umm et-Tūt, passes a little north of Zimmārīn. It then makes a sharp turn southward to pierce the dunes at Hajar esh-Sheikh, turns abruptly N. to run for a mile parallel with the coast, and eventually enters the sea about one mile S. of Tantūrah. Abundant water flows down W. Fureidis during the greater part of the year, but there is perennial water in the Dufleh estuary for about $1\frac{1}{2}$ miles only, to the bridge at Hajar esh-Sheikh. At the mouth of the estuary is a sandbar by which the Jaffa-Haifa coastal track crosses.

GEOLOGY

For the general geological formation of Samaria, see Judaea (p. 442 f.), with which in the main it conforms. There is, however, this difference with regard to the strata, viz., that, while they are horizontal in Judaea, there are slight bendings and warpings in Samaria which help in giving the elevations a more rounded and less rugged appearance. The plateau is mainly Senonian, but Cenomanian appears on both the western and eastern slope.

There are outcrops of cretaceous basalt in the vicinity of the village of Umm el-Fahm, notably J. Sheikh Iskander and other smaller cones west of it. This formation, described also as volcanic tufa, forms a water-bearing bed, so that digging in the district leads almost invariably to water.

The district of the Belād er-Rūhah is mainly comprised of Senonian pervious strata overlying impervious Cenomanian. In places, as in W. 'Ārah, the Senonian strata are not deep and are of a very friable nature.

The alluvial coastal plain of Samaria is fringed on the west by a well-marked and almost continuous line of dunes. Originally formed of drift-sand, these dunes, in places, have become hard stone by atmospheric action. The stone is known locally as *hajar ramleh* (sand stone) and numerous ancient quarries show that it was once much used for building purposes: indeed the mediaeval castles on the shore and also the present village of Tīreh are built of it. For remarks on the geology of Mt. Carmel in particular, see p. 502 f.

WATER-SUPPLY

(1) The hill belt. The district around Nāblus is principally supplied by wells of living water dug down to the harder strata beneath. Nāblus town possesses an abundant supply of good water; there are five main primary sources and eleven smaller ones which feed the numerous springs and fountains in the town. The basin of Wādi Nāblus is well supplied with small springs of clear water situated near

villages. The wādi carries a perennial stream and, in winter, water flows as far as Rāmīn, in summer as far as Beit Ība ; but this water is not suitable for drinking purposes, being contaminated by the sewerage of Nāblus.

NE. of Wādi Nāblus and the Samaritan hills and also SW. of the Tūl Keram-Deir Sherāf section of the Jaffa-Nāblus road, water is very scarce, the supply being almost entirely from rain-water cisterns which dry up in summer. The district S. of Nāblus and W. of the Jerusalem Road is well supplied, the springs round Selfit and in W. Matwi having an abundant yield ; the 'Ain er-Rāja, near Yāsūf, also yields abundantly. In the Mukhneh Plain, east of the Jerusalem-Nāblus Road, good wells are frequent.

The district N. of Sebastiyeh, including the Sahel 'Arrābeh, is remarkable for its fine water-supply, from springs. In the Merj el-Ghuruq, a plain from which the water has no outlet, the valleys in the low surrounding hills bring down water in winter and, at this time of year, the plain becomes a marshy lake ; but no springs exist near. On the northern borders of Samaria, along the SW. edge of the Plain of Esdraelon between Tell Abu Qadeis and Tell Qeimūn, are numerous groups of springs, notably around Lejjūn.

The Belād er-Rūhah is composed of pervious Senonian strata. Villages are far apart because water is scarce. Springs, however, appear along the wādis at the junction of the Senonian and impervious Cenomanian strata, but the yield of most of them varies greatly with the seasons.

(2) The maritime belt. This section of Samaria is plentifully supplied with water, (a) from the coastal streams—Fāliq, Iskanderūneh, Mefjir, Zerqa, and Duffeh—and, (b) from wells and water-holes. Between the Nahr el-'Auja and Haifa the rock is limestone, with strata inclining towards the sea. Water in abundance can be found under the rock and in the plain above it. Above and below the limestone rocks are layers of clay between which the water is retained. Owing to the inclination of the strata towards the sea, the various layers of water are struck above sea-level. Water is found

practically on the surface in the basin of the Nahr el-Fāliq and in that of the Iskanderūneh farther N.

Along the coast close to the sea and also farther inland, water-holes are dug by the Bedouin and water is readily found. These wells or water-holes are made in the following manner : A circular hole is dug and a barrel with the bottom knocked out is placed in it and pressed down in the sand until the top is level with the ground, the sand being then scooped out from the inside. Water generally sweet, but sometimes brackish, thereupon appears. These holes are liable to get choked from time to time by sandstorms or to be flooded by rough seas. Waterholes found round the marshes prevalent near this coast contain water which, though possible for drinking purposes, is flat and unpleasant, and is said to cause indigestion.

Abyssinian wells could be bored through the clay, near the coast, with good results and abundant water found in the sand underlying it at an average depth of 20 metres.

Farther inland, along the line of the 'Afūleh-Ludd railway, the rock appears on the surface and to get water here it is necessary to bore through it. The water so obtained is said to be almost unlimited and does not seem to decrease even by abnormal use. At Tūl Keram, the rock was penetrated and water found at 90 metres and it rose 20 metres in the bore. Farther eastward still, rain-water cisterns are used for the collection of the surface water from the hills.

There is an abundant supply of water at Haifa, obtained almost entirely from wells most of which, however, are more or less brackish.

(3) The eastern belt. In the southern part of this belt two abundant perennial streams are found, viz. the Fār'ah, with its W. Bidān, and W. el-Mālih. The two main sources of the Fār'ah, viz. 'Ain el-Fār'ah and 'Ain ed-Duleib, are situated at head of the wādi near Burj el-Fār'ah and the strong stream in W. Bidān is fed by a group of springs known as 'Ayūn Bidān. In Wādi el-Mālih a group of strong springs combine to form a stream which turns a mill and, in addition,

irrigates some gardens. El-Hammām and other springs in the neighbourhood yield water as hot as a man can bear.

The plain of Beisān is, in large part, well watered by short streams fed by springs. The town of Beisān has an unlimited water-supply. There are three main springs the yield of the largest of which is estimated at 1,000 cubic metres per hr. ; this spring and one of the others are regarded as among the largest sources in southern Palestine ; they rise from deep water-bearing strata.

The extreme north of the eastern belt abuts on the abundant perennial R. Jālūd which belongs to the district of Galilee (see p. 531 f.).

CLIMATE

The general climatic conditions of Judaea obtain also in Samaria. No systematic records of rainfall or temperature are, however, available for any particular places, excepting Haifa. The average annual precipitation at Nāblus is said to be about 25·6 in. As in Judaea, the amount of rainfall increases slightly from the coast to the watershed and then rapidly diminishes ; but on the eastern side of the watershed of Samaria the precipitation is somewhat greater than is the case in Judaea, so that the eastern slope here does not reproduce, so markedly, the absolutely sterile features of the wilderness of Judaea. Marshy tracts in the maritime plain are extremely unhealthy, see pp. 478 and 500. For the peculiar atmospheric conditions of the Carmel district, see p. 504 f., and for Haifa, see Chap. II, p. 44 f.

NATURAL PRODUCTS

Minerals.—With the exception of good building stone, found almost everywhere, and salt, obtained from pans along the coast, the mineral resources of Samaria are, as far as is known, of no great importance. There are hot saline springs in W. el-Mālih, about 6 miles almost due E. of Tūbās. For details of the mineral resources of Carmel, see p. 505 f.

Flora.—In the comparatively open districts of Samaria

natural vegetation is somewhat more varied and abundant than in Judaea. Several of its hillsides are (or were), covered almost to their summits with tree-growth ; tracts, such as the low chalky plateau of the Belād er-Rūhah, on the other hand, are absolutely devoid of trees. The upland of Carmel is now bare but its fringe has a luxuriant growth of trees and shrubs especially on the western side.

Among the forest trees the evergreen holm-oak, or ilex, is the most common on the hill-sides and the most widely distributed. The deciduous oak is more rarely met with and prefers the valley bottoms. The terebinth tree is fairly general and the strawberry tree or arbutus, less common. Sycomore figs are frequently found near springs. The palm is rare, even in the coastal plains of this district. The eucalyptus, introduced in recent years, has been very extensively planted in certain marshy districts of the maritime plain, notably near the courses of the N. el-Mefjir and N. ez-Zerqa. In the former region no less than 300,000 are reported to have been planted by Jewish colonists, but the bulk of these are said to have been cut down for fuel since the outbreak of war.

Of shrubs and bushes, the hawthorn, the thorny burnet, one of the so-called 'Christ-thorns' (*billān*), and the blackberry bramble, are the most common and are very abundant. The oleander grows luxuriantly along the banks of streams, especially that of W. el-Fār'ah.

Fauna.—There are many hyaenas and jackals but the fox and badger are rare ; wolves are not yet entirely exterminated in this district. The weasel and another weasel-shaped mammal, the ichneumon, are common and particularly destructive of poultry. Porcupines are found in the caves of Samaria. Gazelles are occasionally seen in the remoter hill districts, and wild boar are reported in the lower swampy parts east of Qaisāriyeh where there is much dense and rank vegetation. The crocodile is said to be still found in the N. ez-Zerqa. A peculiar but harmless animal known as the *rudhdha'*, or ground crocodile, resembling a green snake with feet and often about 24 in. in length, is met with. For the

animals more or less peculiar to the Carmel section of the district, see p. 507.

Of wild birds, vultures, kites, and crows are common, but song-birds are entirely absent. Wild fowl are extraordinarily plentiful in the marshes and swamps of the maritime plain, notably round about Birket Ramadhān. Reptiles are numerous, also grey lizards of great size, and large-sized venomous snakes are occasionally met with on the hills. There is a marked absence of coleoptera; but scorpions, 3 or 4 in. in length, large yellow-coloured spiders, and a dangerous species of centipede some inches in length, are numerous. Leeches are very common in many of the wells, as is the case in other parts of southern Syria, and special care has to be exercised when watering cattle.

INDUSTRIES

Agriculture

The chief agricultural products of the Samaria district as a whole, arranged more or less in the order of their importance and value, are: olives, wheat, dhura, barley, fruits (chiefly apricots, citrons, and oranges), beans, onions and other vegetables, and tobacco. As is the case in Judaea, cultivation divides itself into two types—that of the plain in the west and that of the hills in the centre and east.

That part of the Plain of Sharon which lies within the limits of Samaria is composed of heavier soil than the part round Jaffa and is specially adapted to cereals. In the opinion of one authority, it is so fertile that, under proper cultivation, it would supply the entire population of southern Syria with food-stuffs; but much of it at present is given over to thorns and thistles and natural pasturage. Outside the Jewish colonies (for the crops of which see I.D. 1203), the plain is cultivated by the Arabs for cereals, chiefly a hard bearded kind of wheat. A good deal of sesame, and dhura and melons are also grown. The sesame produced around Haifa and in the Plain of Esdraelon (Galilee), is some of the

finest in Syria. Melons, a very important summer crop and a staple article of local consumption, are grown in great numbers in the lighter sandy soil all along the coast, notably at Mukhālīd between the N. el-Fāliq and the N. Iskanderūneh. The surplus melons, sometimes as many as 4 millions in a year, are exported, mostly from Mīnet Abu Zabūra, the trade being chiefly in the hands of the Bosnian colonists of Qaisāriyeh. A certain amount of tobacco is grown in the plain as well as in the hill-country; the amount of leaf produced, according to Cuinet, 1901, was about 60,000 kilos.

The eastern half of Samaria is in general hilly and stony, and cultivation, almost entirely in Arab hands, is very patchy. Lentils, barley, wheat, and onions are the principal products of this section, but, the country being here populous, the surplus produce for sale outside the immediate district is small. Nāblus is the central market town. Around Nāblus itself springs are very numerous and in its extensive irrigated gardens vegetables and fruits are very largely grown; there are also a good many olive groves in this locality. W. Nāblus, sometimes known as W. esh-Sha'ir, grows good and abundant corn and barley. South of Nāblus, towards Jerusalem, there are practically no springs, so 'dry farming' is mostly carried on. The district north of Nāblus is perhaps the richest part of Samaria: between Nāblus and Jenīn the land is plentifully supplied with water and vegetables, especially onions, are grown; this locality is in fact the principal source of onions for all western Palestine south of Haifa. The Plain of 'Arrābeh and the Merj el-Ghuruq lie in this direction; the latter with a soil of rich dark loam is planted chiefly with a summer crop of millet, though in some parts of it, where the surface is more elevated, wheat is also sown. Considerable quantities of apricots are grown at Silet edh-Dhahr; at Jenīn, approaching the edge of Esdraelon, the land is mostly under cereals (wheat and dhura), and sesame. South-east and east of Nāblus are the plains of Mukhneh and Sālim, both of which produce good crops of wheat and millet, though the soil seems to be less rich than

that of the plains in the north. Around Haifa, cultivation is largely in the hands of German colonists who have brought about 3,000 acres of land into a high state of productiveness, the chief crops being sesame, wheat, barley, dhura, and chick-peas ; see further, p. 508. The Plain of Beisān gets ample water and is highly fertile in parts, nevertheless cultivation is comparatively restricted, except in patches round the springs which the Arabs till mostly for wheat, the rest being given over to a very rank natural vegetation. The Samaritan section of the Jordan Ghōr is occupied mainly by Bedouin herdsmen and there is here very little arable tillage ; but W. el-Fār'ah is a notable exception. This valley, well watered by a fine stream of perennial water, embraces the oasis of Qarāwa, a tract of remarkable fertility extending for some 5 miles towards the Ghōr. It is one of the richest spots in southern Syria, producing corn, vegetables, and fine pasturage.

The olive flourishes even better in Samaria than in Judaea, the soil and climatic conditions being particularly favourable, and Samaria is quite one of the principal districts of its cultivation in the whole of southern Syria. The groves are (or were) extensive especially around Nāblus, as well as on the hills north of Wādi esh-Sha'ir and in the Haifa district. The crop varies very greatly from year to year—a peculiarity of the tree being that it rarely bears well two years in succession. The other most common fruit trees of the district are the fig, apricot, and lemon : W. Nāblus, especially around the town of Nāblus, is essentially a fruit-producing locality. The grape-vine is, in general, much less cultivated than in Judaea, except in the Jewish colonies ; see I.D. 1203.

Cotton.—Experiments in the cultivation of cotton have been made in recent years in various localities of Samaria and other districts. In 1909, about 580 feddans of irrigated land in the vicinity of Beisān, and about 400 feddans of dry soil in the country behind Haifa were placed under cotton ; in 1910 the total area under cultivation was increased. The results of the trials in the plain of Beisān were considered satisfactory,

where the crop yielded from 4-5 qantars per feddan ; at Haifa results were disappointing, the yield per feddan being only $\frac{1}{2}$ qantar, but in the latter case the failure is attributed to want of experience in the proper methods of cultivation. The soil in the Plain of Beisān and in certain other parts of the Jordan valley is reported, by Egyptian experts who have been in the country, to be admirably suited for the cultivation of cotton ; but it is thought that the questions of irrigation and labour are obstacles which will have to be overcome before cultivation can be undertaken on a large scale. *Consular Report*, 1911, says : ' Should cotton growing be taken up by a competent company, the cotton yield would probably not be inferior to that of Egypt in quality.' Up to 1911 there was no ginning plant in Syria, except one machine at Haifa, and the bulk of the yield was sent to Mansūrah in Egypt to be treated and sold.

Sugar-cane was once largely grown in certain parts of the Ghōr and there seems to be no reason why it should not again become a profitable crop.

Stock-rearing.—According to Cuinet (1898), the approximate number of head of stock in the Samaria district was 210,000, comprising : oxen and cows, 5,100 ; buffaloes, 500 ; horses, 2,300 ; donkeys and mules, 3,700 ; sheep, 30,750 ; goats, 168,000 ; and camels, 740. There were at this period more horses in Samaria than in Judaea. In proportion to the area, the number of oxen and cows appears to have been much less in Samaria than in Judaea ; on the other hand, sheep were relatively much more numerous and goats slightly more so. On the whole, there is in Samaria a larger area of suitable pasturage for sheep and goats than in Judaea. Buffaloes graze in the swamps of the N. ez-Zerqa. Fowls are largely kept in the villages.

Turning to more recent information, an authority says : ' In this area (Samaria), there is very little stock. Very few sheep in the hilly country and oxen are not numerous. Four years ago there was a serious epidemic among sheep and cattle, and the stock was very much reduced. Now

there is practically no stock left, there being especially a great scarcity of transport oxen.' The same authority says : 'no mules are bred in Palestine, all are brought from Northern Syria' (Ormesby Gore, 1917).

Bee-keeping is a profitable industry, in the district of 'Arrābeh in particular.

Manufactures

The olive-oil and soap industries are by far the most important of the district of Samaria. The oil of Nāblus is considered the best in Syria. Presses for the extraction of olive-oil are scattered about in various towns and villages throughout Samaria but most are to be found in the neighbourhood of Nāblus and the district just north of it, the other main centres being Silet edh-Dhahr, Qubātiyeh, Jenīn, and Haifa. The methods of extracting the oil from the fruit are mostly of a very rudimentary description, the presses of wood being of primitive construction and turned by horses; but hydraulic presses are also used, mainly in the Haifa-'Akka district. The process of extracting edible oil (as distinct from oil suitable only for making soap), to be effective must be rapid in order to obtain the oil before fermentation of the berry sets in. The more rapid production of a larger percentage of oil is only possible by the use of hydraulic presses. The old process generally obtaining in Samaria is therefore wasteful and, by it, only a small part of the olive crop can be treated for edible oil before the berries become rancid and unfit for human consumption, with the result that the bulk of the oil obtained is only suitable for making soap. Most of the edible oil produced throughout Syria is used for home consumption, for, as yet, little attention has been paid to improving it by refining.

The soap factories are at Nāblus and Haifa—some thirty in the former and some two or three in the latter town. Those at Nāblus appear to be mostly small native concerns and consist at most of from one to five boilers or soap-pans. At

the factories of Haifa more modern methods of production have been introduced. The largest, owned by a Russian Jewish Company, was producing in 1911 on an average about 200 tons of soap per annum, and the factory has since been enlarged and its capacity doubled. In 1913 there was also a factory under American direction, and a smaller factory capable of producing 50 tons yearly, but the latter appears to have been closed. The normal yearly output of the soap-works of Nāblus is 500–1,000 tons according to the olive crop, and of those of Haifa, 300 tons. Vegetable fats other than olive-oil now partly enter into the manufacture of native soaps.

At Nāblus there are a few presses for the extraction of oil from sesame seed which, in Europe, is used in the manufacture of margarine, but the bulk of the sesame crop is exported as seed.

A small amount of cotton-ginning is done at Haifa. A large factory for the manufacture of wine bottles was set up some years ago at Tantūrah, but it has been closed down for some time. There is a large steam flour-mill at Jenīn, and a small German iron foundry at Haifa (1913). For the small industries carried on in the Carmel area, see p. 509 f.

TRADE

Though the port of Haifa is situated in Samaria, a large part of the trade of this district, up to within recent years, tended to gravitate to Jaffa, finding a ready outlet by comparatively good roads centring on that port and favoured also by the superior and more regular shipping facilities of Jaffa. But, during the years just anterior to the outbreak of war, the commercial development of Haifa was steady and continuous; the construction of the Haifa–Der'a railway, opened for traffic in 1906, made Haifa the natural port of the Hejaz railway, and the town immediately showed signs of attracting shipping as well as interior produce from Arabia and Damascus, in consequence of which it gradually grew in importance at the expence of 'Akka and, to a certain extent, even of Beirut.

Up to some twenty-five years ago, 'Akka was the port to which almost all the grain from the Haurān, intended for export to Europe and the Syrian coast, was directed and from which it was shipped. On the completion of the Damascus-Beirut railway (1896), the grain trade was diverted for a time to Beirut; but, since the construction of the Haifa-Der'a railway, Haifa has received and shipped, to the prejudice of Beirut, much of the Haurān grain, and Damascus and Northern Arabia now obtain a considerable proportion of their supplies through this port.

The railways constructed still more recently in Southern Syria—the broad-gauge Rafah-Ludd-Haifa and the narrow-gauge Tūl Keram-'Afūleh lines—will doubtless still further modify the trade movement of this region, and will unquestionably affect the distribution of the trade of southern Syria, as between the ports of Jaffa, Haifa, and Beirut. In addition, schemes for new harbour works both for Jaffa and Haifa have been under consideration for some years, and concessions are reported to have been granted just before the outbreak of war; the extent to which these projects are realized in the future will have its distinct bearing on the proportion of trade which will eventually fall to each of the two ports in question.

The extent of the trade of Haifa is broadly shown in Chap. VIII, p. 304 f. The principal articles of *export* in approximate order of value are: wheat, beans and lentils, sesame, barley, dhura, olive-oil, wine, and eggs. The wheat, derived mainly though not wholly from the Haurān, averaged 60,000 quarters annually during the period 1907-13. Sesame is a more local product, the Plain of Esdraelon and the district of Haifa producing the larger yield and the best quality of this seed in Syria: an average harvest allows of some 9,000-14,000 tons being exported (in normal times) to Marseilles, Genoa, Hamburg, and Trieste. The wine exported from Haifa is produced almost exclusively at the Jewish and German colonies of Carmel and amounts annually to some thousands of hectolitres. The soaps of Nāblus find their outlet, to Egypt and the Levant, at Jaffa. The principal articles of *import* at Haifa

and their proportions correspond in the main to those of other ports of Syria ; but coal and briquettes form an exceptional item, and, previous to the war, averaged 20,000–35,000 tons annually, imported mainly for the Railway Administration.

Of the total trade of Haifa, export and import, about one-third is carried on, normally, with France, one-fifth with the United Kingdom, and one-eighth with Egypt. During the period 1909–13 about 530 steam vessels dealing with an annual aggregate of three-quarters of a million tons of goods entered and cleared the port annually, of which 140 were British, 115 Russian, 106 Austrian, 45 Turkish,¹ 34 Italian,¹ and 28 French. During the same period, 670 sailing vessels dealing with about 11,000 tons of cargo cleared annually. Haifa is about two days distant by steamer from Port Said and about six hours from Jaffa and Beirut.

A small local coasting trade is carried on at Tantūrah, ‘Athlīt, Qaisāriyeh, and Minet Abu Zabūra, small coastal villages south of Haifa. Of these, Tantūrah, the most important, exports a quantity of wine ; as much as 1,000 barrels have been shipped in one day in a steamer anchored off the port, and a number of local sailing craft call here at the end of summer. Considerable quantities of melons are shipped at Minet Abu Zabūra. Steamers occasionally call in summer at Qaisāriyeh, for melons, wheat, and barley from the plains of Sharon.

The chief inland market centres of Samaria are Nāblus, Beisān, and Jenīn. The first town and the most important of the three was (1918) the terminus of a branch of the Tūl Keram–‘Afūleh railway. It is the meeting-place of several trunk roads and carries on a considerable trade with the country to the east of the Jordan. Beisān, situated as it is on the Haifa–Der‘a railway, a centre of many good roads, and lying midway between the most prosperous regions of Samaria and Galilee on the one hand and Central ‘Ajlūn on the other, seems marked out as the main mercantile centre of the middle

¹ The Italian and Turkish share in the shipping movement was below the normal amount, as the Turko-Italian War fell in this period, 1909–13.

Jordan valley. The town has increased rapidly in recent years and is chiefly a grain market. Jenīn, situated in a rich well-watered agricultural district, is an important station on the Tūl Keram-‘Afūleh railway. Tūl Keram itself, the junction station of the ‘Afūleh line with the Rafah-Ludd-Haifa broad-gauge railway, is likely also to develop into a business centre of comparative importance.

INHABITANTS

Population.—It is difficult to arrive at any precise estimate of the actual present population of Samaria. The sources, from which the figures given in the tables below are taken, are: Cuinet, 1896; the *Annuaire oriental*, 1914; and Ruppin,¹ 1915.

The total population of the district under description—viz. the sanjaq of Nāblus and the kaza of Haifa—is as follows: according to Cuinet, 64,707; *Annuaire oriental*, 127,709; Ruppin, 184,378.

The distribution of the population to the several kazas composing the district of Samaria, according to the three sources, is as follows:

TABLE I

<i>Kazas.</i>	<i>Cuinet,</i> 1896.	<i>Annuaire</i> <i>oriental,</i> 1914.	<i>Ruppin,</i> 1915.
Sanjaq of Nāblus :	—	107,709	—
Kaza of Nāblus	28,675	—	76,426
,, Jenīn	9,654	—	41,422
,, Beni Sa‘b or Tūl Keram	5,671	—	35,901
,, Selfit or Jemmā‘īn ²	4,979	—	—
Sanjaq of ‘Akka			
Kaza of Haifa	15,728	20,000	30,629
Totals	64,707	127,709	184,378

According to Cuinet, the population of the area under description in 1896, was composed of the following categories:

¹ From *Syrien als Wirtschaftsgebiet*. See footnote, p. 458.

² Selfit or Jemmā‘īn is now absorbed in the kaza of Nāblus.

TABLE II

<i>Categories.</i>	<i>Sanjaq of Nāblus.</i>	<i>Kaza of Haifa.</i>	<i>Totals Samaria.</i>
Moslems	40,630	5,350	45,980
Christians :			
Maronites	3,000	223	3,223
United Greeks	3,004	3,598	6,602
Orthodox „	169	450	619
„ Syrians	1,629	—	1,629
Latins	100	—	100
Protestants	150	35	185
Jews	117	5,200	5,317
Samaritans	180	—	180
Druses	—	422	422
Foreigners	—	450	450
Totals	48,979	15,728	64,707

It may be assumed that Ruppin's figures, in Table I, represent the present day population more nearly than the figures of the *Annuaire oriental*, for the statistics of the latter work have not been found to bear investigation and are often contradictory. Cuinet's figures in Table II, though they are not very recent, serve a useful purpose in giving some general indication of the comparative numbers in the main categories—Moslems, Christians, Jews, &c.

The following table shows the chief centres of population in the district of Samaria including Carmel : figures in round numbers.

TABLE III

<i>Town.</i>	<i>Population.</i>	<i>Character.</i>
¹ Haifa, variously estimated .	20,000–30,000	
¹ Nāblus „ „ .	27,000–30,000	Moslem, with 160–180 Samaritans
¹ Tūl Keram „ „ .	1,500–5,000	
Jenīn „ „ .	2,000–4,500	Moslem
Beisān „ „ .	2,000–3,000	Chiefly Moslem, some Jews
Selīt	2,000	Moslem
Qāqūn	2,000	Moslem
Iqzim or Ijzim	1,500	
Umm el-Fahm	1,500	Moslem and Christian
Tantūrah	1,200	Moslem
Zimmārīn	1,000	Mostly Jews
Tīreh	1,000	Moslem
Dāliych	750	Druse, some Moslems
‘Usufiya	600	Druse
Umm ez-Zeināt	600	

¹ Ruppin's figures, 1915, are : Haifa, 20,000 ; Nāblus, 30,000 ; Tūl Keram, 5,000.

The population of Haifa is reported to be made up of : Moslems, more than one-half ; Jews, not more than 3,000 ; Germans, possibly 800 ; Orthodox Greeks, 1,500 ; Latins, 600 ; the remainder, Maronite and United Greeks. According to Ruppin, the population of Haifa had increased from 5,000, in 1880, to 20,000, in 1915.

Settled people.—The population of Samaria and the districts north of it presents much racial, religious and political variety.

In the maritime plain there is a general Arab agricultural population in the south. In the north, however, this has been more largely intruded upon by the Jewish colonists than elsewhere in Palestine, except perhaps the immediate neighbourhood of Jaffa. The large Jew settlements of Khudheireh and Zimmārīn, with their dependencies, own most of the good land, leaving to the Arabs the marshy levels and the foothills. But the prevalent malaria, affecting immigrants more than natives, tends to thin out the Jews in certain of the colonies and to bring the Arabs back into vacated lands. Climatic conditions have impaired the progress of the colonists, especially at Khudheireh, and they are less far advanced than those of Jaffa.

In the western valleys and on the plateau of Samaria, the population is Arab agricultural, mixed with very few Christians, even in Nāblus town which is almost as exclusively Moslem as Hebron. The Samaritans are a fast dying group of under 200 souls all told, keeping closely to itself, mainly in the south-western quarter of Nāblus town.

On the eastern slopes and in the upper western Ghōr are some poor tribes, partly settled and partly tent-dwellers, but all cultivators.

The hill belt from the sea along Carmel towards the Ghōr at Beisān is largely non-Moslem. The western part of Carmel has a mixed urban population of native Christians, of German colonists, of Jewish colonists, and of Druses ; Moslem Arabs only become general in the eastern half of Carmel and in J. Fuqū'. Jenīn and Beisān are almost entirely Moslem

towns. The Druses have two large villages on Carmel. viz. Dāliyah and 'Usufiya; see further p. 511. The Maronites of the Samaria district number at least 3,000 and the bulk appear to be distributed over the various villages of the sanjaq of Nāblus.

Bedouin.—The chief of the small and almost insignificant nomadic tribes found in Samaria are the following :

Hawārith, of two divisions : 'Amarah, numbering some 250 souls, and Nefei'at, numbering some 300 souls. They range round Mukhālīd and as far north as the Nahr Iskanderūneh. The Nefei'at are dangerous club-bearing Arabs.

'Arab el-Ghawārneh, almost independent, have their camps around Qaisāriyah and in the marshes of the Nahr ez-Zerqa. The tracks through the boggy land are known only to them and, being so strongly posted, they are almost free from contributions to the government. Some of them live in reed huts, often hung with goatskins, and are treated as pariahs by the sedentary Arabs and even by other Bedouin.

Turkmāniyah, across southern Carmel; they range the district between the Belād er-Rūhah and Wādi el-Milh.

Isweītāt, originating from Belād Beshārah in northern Galilee, are found at Khreibeh on Carmel.

Qazalni, a branch of the Ka'biyah from the Merj Ibn 'Āmir, range the Carmel district about Shellāleh, W. el-Milh and Bostān.

Semniyīn, from the Merj Ibn 'Āmir, frequent the north-eastern slope of Carmel about J. 'Aqqārah and Sheikh Ibrāq, and, near the latter place, are also found some Bedouin of the little tribe El-Hilf.

Sa'eidi, also from the Merj Ibn 'Āmir, camp in the neighbourhood of Bostān.

Masā'id, owning some 80 tents, range the Ghōr el-Fār'ah S.E. of Nāblus.

For the small tribes of the Samarian Ghōr, see p. 660.

CARMEL

Area

A section of Samaria having peculiar physical and other characteristics, Carmel (Kurmūl) calls for separate and detailed description. Geographically, it may be regarded as an extension, towards the north-west, of the main central range of Southern Syria, though it is partially cut off from it by lower hills (the Belād er-Rūhah). It is best described as a triangular block of mountains, the apex being the promontory on which the Carmelite monastery above Haifa stands, and the watershed runs south-east from this point for about 12 miles to the Mahraqah and Wādi el-Milh. It is bounded on the north-eastern side by the plain of Esdraelon and on the west by the Mediterranean Sea; on the south-east it is separated by W. el-Milh from the Belād er-Rūhah, a low well-watered and fertile but treeless plateau with no ravines but only trough-like hollows, and on the south it terminates in a precipitous bluff known as the Khashm, or Khushm, overlooking the N. ez-Zerqa. The somewhat undefined south-eastern frontier from W. el-Milh to the Khashm accords more or less nearly with the geological frontier line which has the red earth of Carmel on the north-west while eastward is the yellowish-white soil of the Belād er-Rūhah.

More strictly speaking, Mount Carmel, as distinct from the district of Carmel outlined above, does not extend so far south as the Khashm but terminates in a line running east and west from W. el-Milh through the low country of Iqzim and thence along Wādi el-Maghāreh to the coastal plain.

The Carmel area in its widest sense measures about 14 miles along that side towards the plain of Esdraelon, about the same length along its south-eastern border, and 21 miles on the Mediterranean side and comprises some 100 sq. miles of territory.

Administratively, Carmel is embraced in the kaza of Haifa of the sanjaq of 'Akka.

Physical Features

Relief.—The watershed of Carmel, forming a fine ridge and attaining an average level of some 1,600 ft. in its middle part, lies near its north-eastern side. The slope on this side is therefore short and in parts precipitous and descends abruptly to the plain of Esdraelon. On the other side the slope is gentle. Long, parallel and gradually sloping spurs or ridges, known as *fersh* (plu. *ferāsh*), gradually lengthening southward and divided by deep rugged valleys, run westward out of the watershed. The slopes at the ends of these spurs, however, are often abrupt and in places cliffs fall to the maritime plain, as at 'Arāq el-Masālimeh N. of Tīreh and at Wādi el-Maghāreh, S. of the lat. of 'Athlīt. The valleys between the ridges are narrow, winding, and often rocky, but, near the watershed, at Dāliyah, 'Usufiya and other spots, small level plateaux occur. The descent from the ridge to W. el-Milh, on the SE., is also very abrupt. The district as a whole therefore forms an almost detached block of elevated ground, diversified by wild gorges, small level or undulating plateaux covered with brushwood, and protruding rocky summits, and is surrounded by plains. The maritime plain on the western side is long and narrow, measuring from 1–2 miles at its southern and widest part and not more than 200–300 yds. at the foot of the Carmel headland in the north. Considerable sections of the plain are marshy and unhealthy, especially south of 'Athlīt and Tantūrah.

The main ridge of Carmel, its most prominent physical feature, extends for some 14 miles from the headland on which the Carmelite monastery stands, and consists of an undulating crest forming a succession of low peaks (*ra's*, plu. *ru'ūs*) or dome-like summits. It rises from an elevation of 470 ft. above sea-level at the monastery to an extreme elevation of 1,808 ft. at a point about 12 miles to the south-east, whence it falls rapidly into W. el-Milh and an elevation of about 480 ft. at Jelamet el-Mansūrah. The chief summits of the ridge taken in order from the north-west are Jebel es-Sitt

(alt. 951 ft.), Ras Abu'n-Nada (1,571 ft.), Ras el-Juneidiyeh, the middle point (1,720 ft.), Ras el-Jibb, Qamū'at ed-Durziyeh (1,808 ft.), 'Usufiyya (1,758 ft.), Umm es-Senāsīl (1,670 ft.), and Mahraqah (1,686 ft.).

The principal wādis of the north-eastern slope of the ridge are: W. Rushmiya, leading directly to the sea a little E. of Haifa; W. et-Tabl with an important branch W. 'Aqqārah; W. esh-Shōmariyeh; and W. el-Milh, with an important tributary W. 'Arāq en-Nātīf. All of these valleys, with the exception of the Rushmiya, lead down to the basin of the Nahr el-Muqatta'.

The main valleys of the western slope, naming from N. to S. are: W. et-Tatar and W. el-Ghamīq, both having their heads near Jebel es-Sitt (Carmelheim); W. 'Ain es-Seyyāh, with a branch W. Kefr es-Sāmīr; W. 'Amr, with branch W. Rīshi. These wādis are insignificant in size, but not unimportant as ways of communication across the ridge between the western coastal plain and Haifa. The succeeding and larger valleys southward are: W. 'Abdallah, having its heads near the summit Ras Wādi 'Abdallah; W. el-Masrāreh, known at its mouth as El-Mellāhah and east of the village of Tīreh as W. 'Ain et-Tīreh, formed of a great number of small branches taking their rise on the ridge between Ras Abu en-Nada and El-Juneidiyeh, chief tributary W. Bir Fadl; W. Falāh (see below); W. el-Maghāreh; W. Henu, known in its upper course as W. el-Matābin; and W. el-Fureidis. Of all the foregoing, W. Falāh is by far the most important as well as the most intricate wādi system of Mt. Carmel. Its basin extends 8-9 miles from E. to W. and from 3-4 miles from N. to S. The upper sections of the main valley are known successively as the Merj ez-Zerā'ah, an open fertile stretch, the Bāb el-Hawa, a very narrow gorge, and Miqtaleh, open plateau country. W. Falāh embraces an extraordinary number of ramified valleys which have their heads in the main ridge between Ras el-Jibb and Umm es-Senāsīl and, after a very tortuous course, it enters the sea by a well-marked estuary known as Moyet-Dustrei below Khirbet ed-Dustrei. Its

most important feeder is W. Bostān, rising at Dāliyah and joining the main valley from the south, just before it emerges on to the coastal plain. W. Falāh is the only valley of Mt. Carmel which carries perennial water, but this only in parts, viz. from Ras en-Neba' to just below Shellāleh for a distance of about a mile, and from K. ed-Dustrei to the sea. The bed of the wādi is much overgrown with oleanders in certain sections. For further details of the important W. el-Fureidīs, see N. ed-Dufleh, p. 481. The N. ez-Zerqa (see p. 481), the main upper course of which is known as W. es-Sindiyāneh, forms the extreme southern limit of Carmel area.

Geology

Mt. Carmel consists chiefly of limestone strata of various depths and hardness. The surface of most of the high land is a soft, porous chalk (senonian). Beneath this come strata of limestone of various degrees of hardness, from the cenomanian down to the hard crystalline limestone of the Necomian period. Almost everywhere in the limestone are veins of flint, called *suwān* by the natives. In the district S. of Iqzim and again around Zimmārīn are isolated outcrops of cretaceous basalt. The many caves or grottoes that are formed in the rocky sides of the mountains are hung with stalactites; natural cavities in these often hold water impregnated with carbonate of soda.

The upper and softer limestones are known locally as *hajar sultāni* and *hajar meleki*, and are both suitable and much used for building purposes, while the harder strata are known as *hajar yābis*. In the neighbourhood of Tīreh and in the middle course of W. Falāh (Merj ez-Zerā'ah) is to be found a porous yellow or reddish formation, known locally as *trāb el-merāmīl*, of which the Druses of Dāliyah make earthenware.

Much of the soil of Carmel is of a reddish colour due to the presence of iron, a characteristic which stands out in strong contrast to the white colour of the soft chalky soil of the

Belād er-Rūhah over the south-eastern border. The red soil appears to be very rich, as the remarkably luxuriant tree and shrub growth, especially on the slopes, indicates, while on the ridges and uplands, covered as they are only by a thin layer of chalk, vegetation is much more sparse and trees, with the exception of a few stunted pines straggling along the watershed, are absent.

Water-supply

Carmel is badly off for water compared with some of the districts around. The sources of supply are surface springs (not so common in Carmel as elsewhere), deep wells, and cisterns cut in the limestone. The latter, known as *jurn* (or *ruhrah*, if of large size), are sometimes bell-shaped and hold up the rain-water of the early part of the year for a good time. Water sometimes flows out also from subterranean pools (*nezzāzeh*), but only after rain.

The finest springs are : 'Ain es-Seyyāh, in the wādi of the same name below Ed-Deir ; 'Ain 'Usufiyya, in W. esh-Shōmariyeh, the main source of supply of the village of 'Usufiyya ; 'Ain Qutf ez-Zuhūr, near Tīreh ; 'Ain Umm esh-Shuqaf, about $\frac{1}{2}$ mile W. of Dāliyyeh ; 'Ain en-Neba', in the middle course of W. Falāh ; strong springs in the middle course of W. es-Sindiyāneh ; and 'Ain ez-Zerqa in W. Bostān, a very fine spring situated east of the village of 'Ain Haudh. Good springs are also frequent at the foot of the north-eastern slope of the Carmel ridge, at the edge of the Merj Ibn 'Āmir but these belong more properly to the Muqatta' basin (Galilee).

Along the coastal plain and in the lower ground the water-supply is almost entirely from wells or water-holes, many of which are of considerable depth. Among the most frequented wells are : Bir et-Tantūrah, a deep modern shaft with very good water, about 1 mile S. of Tantūrah ; Bir 'Ain et-Tīreh, a well, fed by the spring 'Ain Qutf ez-Zuhūr, on the E. side of the town of Tīreh ; the well of Iqzim, on the west side of the village, of ancient construction, reached

by steps and yielding very good water ; Bir Qal'at el-Malik, south of Kefr Lām, a deep shaft reached by 45 steps, one of the most renowned wells in the whole district ; Bir el-Maqla', a well of excellent fresh water, at the edge of the shore, just S. of 'Athlīt ; and Bir Fādil, in the wādi of the same name, west of Shellāleh, with excellent water, reached by steps. On the north-eastern side of the ridge are : 'Ain Rushmiya at Khirbet Rushmiya, a well partly hewn and partly walled, the water reached by steps ; and Bir el-Mahraqah, 1 mile below Mahraqah, an ancient stone-lined well reached by steps and much resorted to by goatherds.

Zimmārīn is supplied with water from the plain by powerful pumping plant.

Many of the cisterns of Carmel are sadly out of repair. For the greater part of the year nearly all the ravines are dry ; their channels only contain water in winter and then heavy rainfall is liable to fill them to a dangerous extent.

Climate

The atmospheric conditions on Mt. Carmel naturally differ very greatly from those prevailing on the narrow strip of coastland W. and N. of it. The temperature on the mountain, even in August, rarely exceeds 82° Fahr., except on days when the sirocco blows, when it may reach 95° at the most ; on the narrow coastal plains, in summer, the heat is often most oppressive. In winter the temperature sometimes falls below zero, while it hardly ever does so at Haifa. The sea-breezes bring much moisture to this exposed promontory, and the higher the altitude the more noticeable it is.

The average yearly rainfall at Carmelheim, the German colony on Mt. Carmel, altitude 951 ft. above sea-level, at which place systematic records were kept during the three years 1903-5, proved to be 24·7 in., as compared with 26 in. at Jerusalem and 18 in. at Jaffa in the same period. The average monthly rainfall in inches during this period was approximately as follows : January, 5·2 ; February, 3·5 ; March, 2·5 ; April, ·5 ; May, ·2 ; June to September, nil ; October, 2·0 ; November, 4·0 ;

and December, 6·8. The heaviest rainfall in any one year of this period was 10·3 in. in December 1905.

The abnormally heavy dewfall of Mt. Carmel has been noted by many travellers, and on some nights, especially in the fall of the year, it is so great that it actually runs along the gutters of the roofs of houses. The effect of this extraordinary moisture at night is to be seen in the continuance of vegetation throughout the year—plants thrive here that elsewhere would require artificial irrigation and, further, owing to the constant recurrence of the heavy dew, the soft limestone rapidly disintegrates and the soil is constantly replenished. Pasturage is obtainable on Carmel throughout the year, thus making the district a specially suitable region for stock-farming.

As to winds, the westerly (*gharbi*) is the most prevalent, but it blows most frequently in summer; the south wind (*qibli*) is rare. In late autumn the south-east wind is common, not infrequently bringing rain and, because of its coincidence with sowing-time, it is called the *zerrā'i*. The east wind (*sharqīyeh*), or sirocco, known locally as the *sammīyeh* or 'poison wind', is not infrequent in winter, but it is more common and the most insupportable in early summer and in autumn.

Natural Products

Minerals.—Good building stone is plentiful, either limestone, or *hajar ramleh* from the petrified sand-dunes along the coast. The most worked quarries at the present time are those east of Haifa in W. Rushmiya, from which are obtained most of the stone for building construction in Haifa as well as for the construction of the railways in the locality. There are other notable quarries at Maqāti 'Athlīt, on the slopes of Fersh Iskander, and on the northern slopes of Mt. Carmel below the monastery. At Iqzim there is an open iron mine, now abandoned, but the ground all round is rich in iron-ore, Salt is obtained by evaporation from shallow pans made on the shore, notably at El-Malhah about 2 miles south of 'Athlīt, at Beit el-Milh an islet just S. of the same place,

and at Mellāhah 2 miles N. of it. The fellahin make small pans in the interior, to which they carry the sea-water and obtain salt in this way.

Flora.—Speaking generally of the natural vegetation of Carmel, the rugged fringe of the ridge and the deep valleys between soft rocky grey cliffs that penetrate it are covered thickly with a luxuriant growth of shrubs, trees, and plants; higher up, where the bare fractured limestone rock appears and there is an almost total lack of cultivable earth, large areas are covered only with a thorny herbage, and have the character of more or less stony wilderness. The rest is a surface of thick plant growth, where the hundreds of varieties of delicate wild flowers of spring give way in summer to more aromatic growth and thorny plants with woody stalks, which, after surviving the hot months, make way in turn for the flora of the rainy season. The ruling colour of the vegetation of Carmel is an undecided green inclining to a yellowish grey or, more seldom, to blue.

Carmel has lost for the most part the rich natural forest growth for which it appears to have been formerly reputed; but even so the valleys are generally better wooded than the rest of Samaria. Except for groups of trees in a few places, mostly either on private property or protected by sacred tradition, and isolated trees here and there, the upland region is now comparatively bare and open. Oliphant says: 'Formerly—and even within the memory of man—the lower ground round Carmel and the valleys penetrating its outer edge were full of fine tree-growth; the uplands were probably never covered with forests.' If ever Carmel was 'a land of forests', most of the timber trees have now disappeared and what remain are being yearly further depleted. The increasing demand for fuel and charcoal for Haifa and other centres and for numerous lime-kilns daily involves fresh sacrifices; goats prevent renewal by eating up all tree-seedlings. Decades of neglect have completed the work of deforestation.

Among the trees and shrubs the evergreen-oak or ilex

is the most commonly met with, and the deciduous oak much more rarely. The Aleppo pine, introduced from Lebanon and bearing cones with edible kernels, thrives well on Carmel ridge, where it has been extensively planted in the neighbourhood of Carmelheim. The so-called Carmel pine, (*Pinus Pinea*, L.) which is usually pruned to an umbrella-like top on a naked trunk and which was once very common, has given place to the Aleppo pine, but a few specimens straggle along the summit of the main ridge and there form a feature of the landscape. The terebinth is fairly general, and the strawberry-tree or arbutus less common. The storax, a very showy tree in the season of flower, is common in the mountain thickets. It bears a berry used as a bait in fishing; fish eagerly devour it and die and they are then collected for the market. The hawthorn grows everywhere, as also the thorny burnet; the latter, a dry species of bush the branches of which end in sharp spikes, is exceedingly common and is extensively used as fuel in the lime-kilns. The sumach shrub, the fruit, bark, and leaves of which are of commercial value and used in tanning, is found, though it is not very common.

Fauna.—For the fauna in general, see Samaria, p. 486 f. Of species more peculiar to Carmel, the panther, or hunting leopard, has its haunts in the impenetrable caves in the hills, and is met with in the remote gorges in the middle course of W. Falāh, and is the most dangerous. There is also the panther-cat, of reddish grey colour, and the smaller but equally ferocious wild-cat. The thickets in the gorges of Carmel afford fine cover for game, of which many kinds, including the gazelle and hare, abound. The fallow deer and roebuck have been met with, both being commonly called *wa'l* by the natives.

Industries

Agriculture.—That Carmel was once more extensively cultivated than is now the case is shown by the traces of garden- and terrace-walls in places which to-day are practically barren; and by the very numerous ancient rock wine- and

oil-presses scattered about the district. The bulk of highland Carmel is now, however, wild and untilled. Cultivation is confined to certain parts of the narrow maritime plain, notably that part of it west of Haifa ; to valley bottoms, in some of which the soil is exceptionally fertile ; and, in the higher parts, to the neighbourhood of peopled centres, notably Carmelheim, Dāliyah, Zimmārīn, 'Usufiya, Umm ez-Zeināt, and Iqzim. Cereals are largely grown, chiefly wheat and barley and, to a less extent, dhura, but practically all the crop is consumed locally. Sesame, grown in the plain country, is a product having considerable commercial importance in Carmel.

The wheat and barley are sown on Carmel at the beginning of the rainy season, the latter being harvested at about Whitsuntide and the former three weeks later. Dhura and sesame are sown in early spring, and both are gathered in August. There are extensive fields of onions, and water-melons are grown on a large scale, both crops thriving best in the light sandy soils of low-lying tracts. Leguminous plants, including the pea, various kinds of bean, lentil, lupine, and chick-pea, thrive particularly well in Carmel and, of the remaining vegetables, the cucumber, egg-plant, and tomato receive special attention.

Fruit culture is a reviving industry in Carmel, notably vine culture, formerly an important staple, but which had fallen off here, as in other parts of Southern Syria, owing to the Moslem prohibition of wine. The culture of the grape and the production of wine has, however, always been carried on by the Carmelite monastery, and the industry has been taken up in recent years by the German colonists of Haifa and Carmelheim and the Jewish colonists of Zimmārīn, the produce being considerable ; see further, I.D. 1203. Olive-trees often attain a great size in Carmel, and the most extensive groves are at 'Usufiya and Dāliyah. Olives grow well also in the plain round Tīreh towards the foot of the mountains. Almond-trees were formerly more widely grown than at present, and were once so numerous in the valley of Tīreh that this village

was known as Tîret el-Lōz. The carob is a very common tree on the slopes of Carmel, notably on that part below the monastery. The tree is here extensively and carefully cultivated for its pod (the locust bean), which has considerable commercial value. The mulberry and fig-tree flourish in sheltered spots in the plain. The apple, pear, quince, apricot and peach are cultivated in the gardens of the villages, and the medlar has been recently introduced ; but the lemon and citron are rare and the orange-tree is not planted. Only a few isolated palm-trees are found on the high ground ; the dates of these are very inferior in quality, and the tree is therefore not so extensively cultivated as in the maritime plain farther south.

Stock-rearing.—Cuinet (1898) gives the following distribution of stock for the Carmel district : oxen and cows, 2,100 ; buffaloes, 60 ; horses, 300 ; donkeys and mules, 500 ; sheep, 700 ; goats, 28,000 ; camels, 69. There are no pigs in Carmel. Sheep, generally the white broad-tailed breed, are pastured almost entirely in the lowland plains, as the herbage of the hills is unsuitable and the thorny growth which is so prevalent there is ruinous to their wool. Goats, the black long-bearded, on the contrary, are kept in very large flocks on the high ground : they are found in such numbers, in comparison with the area, as to be almost a menace to the survival of certain kinds of vegetation. The mule is much valued on Carmel both as a mount and as a pack animal.

Fowls are largely kept ; but turkeys are few and there are no ducks and geese. Silkworms are reared to a small extent at Yājūr, at the foot of the northern slope. Bees are kept in many villages, the hives being of clay and about 1½ metres high.

Other Industries.—Outside of Haifa the local industries of Carmel are few and insignificant. There are steam flour-mills at Tîreh and Jeba', but no windmills, and only one water-mill, in W. Shellāleh, now disused ; there are winch-mills worked by mules (*tahūnet baghl*) at Dāliyeh and 'Usufiya. Lime-burning is extensively carried on, the stones of ruins as

well as quarries being used for this purpose. Much charcoal is (or was) produced in the wooded valleys of the fringe of Carmel ; most of it finds its way to Haifa for use and export. The oil-pressing industry is carried on mostly at Haifa (see p. 491 f.), but there are also small presses in various scattered localities, in caves or in the cellars of houses. The making of earthenware pots for domestic purposes is a Druse industry carried on mainly at Dāliyah. Mats are made by women at Tīreh and other small villages in or near the plains. The material used is halfa grass and various kinds of rushes found in the swamps round 'Athlīt ; the mats are woven with a shuttle, and not plaited as is usually the case elsewhere.

Inhabitants

Population.—According to Von Mülinen, the total population of the various town and village communities of the Carmel area, excluding the town of Haifa, in 1905 (when a more or less reliable official census seems to have been taken), was 10,893. Of this number, 8,374 represents the native population of Mt. Carmel, 1,193 that of the coastal plain, and 1,326 that of the Khashm.

The main populous centres of Carmel, excluding Haifa and the German Carmel territory around Carmelheim, are the following :

Beled esh-Sheikh, at the foot of the slope of Carmel, about 4 miles SE. of Haifa ; pop. 350.

Yājūr, 1 mile SE. of the above ; pop. 153.

'Usufiyya, or 'Esfiya, on the Carmel ridge, almost due S. of Yājūr ; pop., including the dependency of Jelamet el-'Asāfni, 595.

Dāliyah, about 2 miles SSW. of the above ; pop., including the dependency of Jelamet el-Mansūrah, 744.

Umm ez-Zeināt, about 4 miles SSE. of Dāliyah ; pop. 630.

Tīreh, at the western foothills, N. of Wādi Musrāreh ; pop., including dependent villages, 2,435.

‘Athlit, on the coast ; pop., native, probably less than 100.

‘Ain Haudh, pop. 283, Mezār, pop. 79, Jeba‘, pop. 406, ‘Ain Ghazāl, pop. 737, and Fureidīs, pop. 297, form a chain of villages on the western slopes, between W. Falāh and W. el-Fureidīs. .

Iqzim, or Ijzim, on the plateau of Carmel, E. of the above villages ; pop. 1,519 and next to Tīreh the most populous centre.

El-Khashm, the prominent upland lying between Wādī el-Fureidīs and the Nahr ez-Zerqa, on which are situated Zimmārīn and other Jewish colonies and a few native villages ; total pop., 1,326.

The very great number of ruined sites to be found on almost every hill-top of Carmel, built mostly of solid material though but few of them cover any great extent of ground, bear witness to a population which was formerly much denser than at the present time. The innumerable ancient olive oil- and wine-presses to be found in places which are now wilderness seem also to show that both the hills and valleys must formerly have been more extensively cultivated than is the case now.

Settled communities.—The Druse settlements on Mt. Carmel are Dāliyah and ‘Usufiya, with their respective dependencies of Jelamet el-Mansūrah and Jelamet el-‘Asāfni at the north-eastern foot of the ridge, and they are the most southerly outposts of the Druse communities of Galilee. The Druses formerly also occupied El-Khreibeh, Shellāleh and Bostān, but abandoned these villages during the Egyptian occupation of 1831–40. They came to Carmel about 280 years ago, and Dāliyah is the most southern village in Syria occupied by them. Their spiritual head is the Sheikh of Jūlis (Galilee). They are most industrious tillers of the soil, but there is a marked difference between the two villages, the people of Dāliyah being reported of a far superior class to those of ‘Usufiya.

Native Christians are to be found, outside of Haifa, only at ‘Usufiya where some 150, or about one-fourth of the total population, share this village with the Druses. They are of the Greek Church, and their *khūrī*, or pastor, is appointed by the Uniate Archbishop of ‘Akka. In civil matters the

community elects its own *mukhtār*, or head, who is recognized by the kaimmakam of Haifa. They own their proportion of land round 'Usufiyya and also at the dependent settlement of Jelamet el-'Asāfni, and they have their own school for boys and girls.

Persians. On the slopes of Mt. Carmel, just above the German colony of Haifa, there is a small community of the Bāb sect, but it is of little importance either numerically or politically.

Europeans. With the exception of the monks of the Carmelite monastery, who are mostly recruited from Spain and are few in number and under French protection, Germans form the chief element of the settled foreign population of Carmel. They are mostly Swabians of the Temple Community, who came from Würtemberg and first settled at Haifa in 1868, and have since increased in numbers to probably about 800. They have gradually extended their territory over that section of the ridge of Carmel known as Jebel es-Sitt (Carmelheim) and along the maritime plain towards the headland; they also own tracts of land at Neuhardtshof and Tīreh. They are agriculturists and have done much by their perseverance and industry to increase the general prosperity of Haifa; see also Chap. V, p. 192.

Jews of European origin have settled mostly in the Khashm section of Carmel, where they have established prosperous colonies; see I. D. 1203. Of native Jews there are but few in the villages outside of Haifa.

Villages. The villages of Carmel are usually built in well-chosen and healthy sites—either on a height near open level ground, as Dāliyyeh, or on a rise at the foot of the mountains. The houses are mostly constructed of unhewn limestone or, as at Tīreh, of the *hajar ramleh*, hardened sandstone of the dunes, and are sometimes clay plastered; but some of the poorer houses are of mud. The usual native house is flat-roofed and one-storeyed. The huts of the very poor are often built in groups round a common yard and consist generally of one room. At Iqzim the well-known Mahdi

family occupy exceptionally large fortress-like houses, and at Tîreh parts of the former Crusaders' Castle have been transformed for habitation. The mosques of Carmel are comparatively small and usually have no minaret, but withal are here designated as *jāmia'* and not *masjid*. In a village where there is no mosque, the *manzîl* or alighting-place for strangers, which every village of any size has, serves as a mosque.

For raising water the *nā'ūrah* is common as in other parts of Palestine, but it is here called *hannāneh*; the *shellāf moy*, similar to the *shaddūf* of Egypt, is also employed though, according to Post, it is not found elsewhere in Syria.

Sacred places of Carmel.—The chief places of pilgrimage of Mt. Carmel are two, viz. (a) El-Khudhr or Khadhr (Elijah's Cave), and (b) the Shejeret el-Arba'in. The former is a cave at the foot of the headland below the Carmelite monastery, to which it formerly belonged but is now a *wagf*. It is reached by a rough step path from the Haifa-Jaffa road, or by a path down from the Carmelite monastery, and is visited by both Christians and Mohammedans. The Shejeret el-Arba'in, or trees of the forty martyrs, is a group of fine old evergreen oaks lying a little east of Khreibeh on the ridge road. In the shade of the trees is a *mihṛāb* or prayer-niche, consisting of a semicircle of rough stones about 1 metre high. The trees are held in special veneration both by Mohammedans and Druses, but are not a place of pilgrimage for native Christians.

Other groups of venerated trees are to be found at Bir Fādîl in the wādi of the same name, and at Es-Sitt Khadhreh, east of Shellāleh, and there are numerous *maqāms* scattered over the district. The *maqām* of Sheikh Ibrāq, near 'Athlît, is a place of pilgrimage of Moslems second only in importance to that of El-Khudhr.

Bedouin.—The nomads of Carmel number at most 300 souls,¹ and are remnants of small branches of larger tribes. They mostly keep goats, possess but few camels and rarely any horses. Their camping-grounds are called *manzileh*

¹ Von Mülinen, 1905.

(plur. *manāzil*), to which term is usually added the name of the occupying goat-herd, e.g. Manzilet el-‘Ayyād, Manzilet el-Būbān, &c. They range the uplands in summer, but in winter most of them withdraw to more sheltered spots such as W. el-Milh or the Hāwi el-‘Aqqārah near Yājūr. In Carmel, the Bedouin are regarded with suspicion; there is a long-standing feud between them and the Druses; a few, however, have become sedentary and merged in the peasant population. For an indication of these various tribal remnants, see p. 498.

CHAPTER XVI

GALILEE

AREA

THE physical boundary which separates Samaria from Galilee is well defined, running as it does along the southern edge of the great opening across Palestine which breaks the western range and affords clear passage from the coast to the Jordan. This great opening consists of three divisions. To the west lies the southern section of the coastal plain of 'Akka, traversed by the Nahr el-Muqatta' (the ancient Kishon) in its lower course after the stream has broken through the narrow passage between Carmel and the foothills of south-western Galilee. In the centre is the large inland plain of Esdraelon which the Muqatta' drains; and upon the east, running down from Esdraelon to the Jordan, is the long valley of the N. Jālūd, famous in Hebrew antiquity as the Valley of Jezreel. Of these, the central plain lies as much across as on a line with the other two, spreading to north and south. Thus the southern edge of the great opening, while maintaining generally a south-easterly direction from the coast, does not run through out in an unbroken line. Passing at first from the foot of Carmel along the low Samarian hills to Jenīn, it there turns northward within the crescent ridge of Jebel Fuqū'. But, after rounding the northern horn of that mountain at Zer'in, it resumes its south-easterly direction and reaches the Jordan valley below the steep north-eastern slope of Fuqū' which rises like a wall above the Valley of Jezreel.

The other boundaries of Galilee are equally well defined. To the west the Mediterranean and to the east the Jordan valley and its two lakes are natural frontiers. So, too, is the northern boundary, the extraordinary and deeply eroded gorge

of the Qāsimīyeh, which forms the lower course of the Lītāni River from the point where it turns at right angles westwards towards the coast. This deep ravine runs from east to west across the greater part of the mountain range, its cliffs rise in places to over a thousand feet, and only at a few points can it be crossed. It thus forms a natural division between the mountain mass of Upper Galilee and the Lebanon, and it leaves but a short ridge or strip of high ground between itself and the Jordan valley. Beyond this rise is the fertile Merj 'Ayūn, the mouth of the great valley between Lebanon and Anti-Lebanon. The southern slopes from the high ground are covered with basaltic lava, and we may assume that it was this laval outflow that turned the Lītāni River out of its natural course down the Jordan valley and forced it to cut its way through the rugged cliffs to the sea. The northern boundary of Galilee to the east of the Qāsimīyeh gorge, may be carried around north of this volcanic outcrop to the Jordan valley; and the Merj 'Ayūn, though it may be conveniently treated as the southward prolongation of the Biqā', is sometimes regarded as within the limits of Palestine.

The district thus delimited represents an approximate area of 1,300–1,400 square miles, having an extreme length from north to south of 57 miles and an average breadth of about 30 miles. The southern part of the district falls within the Turkish administrative area of the sanjaq of 'Akka and the northern part in the sanjaq of Beirut. The former includes the kazas of 'Akka, Tiberias, Safed, Nazareth, and a small part of Haifa, and the latter most of the kaza of Sūr and the kaza of Merj 'Ayūn; but it should be noted that the exterior boundaries of these kazas do not in every part coincide with the limits of Galilee as defined above, as, e. g., on the north, where the kaza of Sūr extends slightly beyond the River Qāsimīyeh.

PHYSICAL FEATURES

A great variety of country is confined within these limits. To the south lie Esdraelon and its contiguous valleys. To the

west this level tract is continued along the coast by the plains of 'Akka and Tyre, separated from each other by a mountain spur which reaches the sea at Ras en-Nāqūrah. Along the eastern side runs the upper Jordan valley, with its abundant water, descending below Lake Tiberias into the sub-tropical Ghōr. And within these three low-lying areas is enclosed a region of mountain, hill, and elevated plain, the most attractive south of the Lebanon. The mountain region is very clearly divided into two parts: a southern, where the hills are gentle and rounded, the plains wide and fertile, and the natural lines of traffic easy and direct; and a northern or upper part, where there are high plateaux, lofty mountains, and deep narrow valleys. The dividing line runs broadly from west to east from the plain of 'Akka along Wādi el-Halzūn to the watershed and thence descends to Lake Tiberias. Lower Galilee, to the south of this line, is a land of long parallel hill-ranges all below 1,850 ft., which, with broad fertile valleys between them, cross from the plateau above Tiberias westward to the maritime plain. To the north of the line lies Upper Galilee, a series of high plateaux with a double water-parting and surrounded by ridges from 2,000–4,000 ft. in height. These two hilly and mountainous zones rise in steps, one above the other, from the Esdraelon plain and form the southern roots or supports of Lebanon; indeed, it is to her dependence on the Lebanon that Galilee owes her water and her immense superiority in fruitfulness to both Judaea and Samaria. In contrasting the landscape of Galilee with that of Palestine farther south, Ritter says: 'In Galilee the forms of nature are more charming than in Samaria and Judaea, although in the north they are presented in a scale equally large. Though the mountains are not absolutely higher, their lines are sharper and bolder; their highest portions are covered with a denser vegetation. The lakes contribute not a little to the charming beauty of this northern province of Palestine. The valleys are not, as farther south, mere arid wādis, but fruitful valleys, capable of being cultivated even to the mountain top.'

In the following more detailed physical survey, the Esdraelon plain, which in separating the highlands of Samaria from those of Galilee forms such an outstanding feature, will be treated first and then Lower and Upper Galilee in order from south to north.

The Plain of Esdraelon and the Valley of Jezreel

The main area covered by the plain of Esdraelon, the modern Merj ibn 'Āmir, consists of a triangle, the longest side of which extends for a distance of some twenty-four miles from the foot of Carmel to Jenīn. The other two sides are equal, about fifteen miles each, the northern being the base of the western foothills of Galilee and the Nazareth Range, the eastern a line from Iksāl south-east of Nazareth running southward to Jenīn below the western foot of Nebi Duhi. East of this triangle the plain sends out towards the Jordan valley three great arms or bays, separated from each other by the ridges of Nebi Duhi and J. Fuqū'. A great part of the northerly bay, to the west of Mount Tabor, and the most southerly, which runs for about nine miles up the curved western slope of J. Fuqū', decline towards the west and their waters drain into the N. el-Muqatta'. The middle arm, or bay, consists of the broad Valley of Jezreel, which extends from the watershed between Zer'in and 'Afūleh to the Jordan valley at Beisān. The main area of plain has an average elevation of 200–250 ft. above sea-level, and its drainage is carried by the Muqatta' to the north-west, where the narrow gorge in the neighbourhood of Tell Qeimūn communicates with the plain of 'Akka. So uniform is the surface that it seems like the basin of a former lake which has found its way to the Mediterranean and left behind it the rich dark soil which has given this tract its great fertility. The main disadvantage under which the plain labours, from the point of view of full agricultural development, is largely due to its natural facilities for drainage, and in this respect it compares unfavourably with the Haurān, in spite of the similarity in their soil. The decomposed red-brown lava of the latter, mixed with volcanic ashes and sand, is seamed

with great lava fragments which may be seen lying in abundance on the surface ; these tend to keep in the moisture and so prevent the surface from being dried too quickly and from becoming cracked. The volcanic elements of the rich brown soil of the Esdraelon plain are, on the contrary, completely decomposed, and the water drains off without hindrance. Consequently under the summer sun the surface of the plain, where previously inundated, becomes full of fissures and as hard as stone, while elsewhere the soil becomes dry and loose. Under such conditions it can be cultivated only after its abundant soaking in the winter. But after that soaking it yields a good harvest, and its appearance under cultivation in the spring, when seen from any point in the neighbouring hills, has often been compared to a vast green lake. During the summer months the main stream of the N. el-Muqatta', where it traverses the plain, may merely contain pools of water in its muddy bed, and in late spring its main northern and western tributaries may be dry. But during and after the rains all the watercourses from the hills and along the plain are full and overflowing. In winter the bed of the main stream does not suffice for the volume of water, so that inundations occur which leave swamps behind. For this reason there are no settlements in the plain itself, and the villages to-day, as in antiquity, are built on the higher ground around it.

The break across Palestine which the plain of Esdraelon affords is in reality a break into the plain of Sharon and not into that of 'Akka. Indeed the roads from 'Akka to the interior of the country, whether making for the Jordan above or below Lake Tiberias, travelled in antiquity, as they do now, through the long parallel valleys of Lower Galilee, north of the plain. Caravans only enter Esdraelon from 'Akka in order to seek a gateway to Samaria at Jenin. The main lines of communication from Haifa to the interior skirt the northern or southern fringe of the plain but do not actually traverse it.

The plain of Esdraelon was celebrated in antiquity for its fertility and, before Herod the Great developed the cultivation

of the Haurān, which up to that time had been merely pasture-land roamed over by plundering Bedouin, the plain of Esdraelon was perhaps the most fertile of the plains of Southern Syria. But to-day the real granary of Syria is the Haurān, and the plain of Esdraelon, though still important as a source of supply, plays in comparison a secondary rôle.

The central recess to the east of the plain of Esdraelon (see above, p. 518) is formed by the Valley of Jezreel or N. Jālūd, lying between Nebi Duhi Range and J. Fuqū'. It may be regarded as an extension of Esdraelon though it is rather a broad avenue to or from the plain than an actual part of it. Beginning at the watershed north of Zer'in (alt. 300–400 ft.), not far from 'Afūleh, it sinks gently in its 12 miles course to more than 400 ft. below sea-level at Beisān, where it drops over a high terrace to the Ghōr or Jordan plain. The narrowest part of the valley is near its head, and its average width is about two miles. It is open throughout, gradually sloping upwards to the foot of the hills on either side.

The Hills of Lower Galilee

These uplands present a succession of parallel ranges divided by broad plains. The ranges, of which there are four, run between east and west, with the crest-line in each case curving slightly towards the north.

(a) The *Jebel Duhi Range*, the southernmost group, forms an irregular quadrilateral running from NNW. to SSE. between Wādi el-Bīreh and the Nahr Jālūd, and would be wholly confined to the basin of the Jordan but for the north-western slope of J. Duhi (Little Hermon), which is within the basin of the Muqatta'. The length of the range is about 15 miles, and its greatest breadth 7 miles. The block is distinctly divided into three parts. The triangular mass of (1), J. Duhi, of volcanic origin, occupies the westerly extremity and rises at Nebi Duhi to 1,690 ft. ; a plateau, intersected by a chain of winding wādis (Dābu, Yebla, and 'Eshsheh), embraces the remainder. Of this plateau, the northern part, (2), is a slightly winding range terminating on the east in the prominent summit

of Kaukab el-Hawa (alt. 975 ft.); the southern part, (3), falls in parallel terraces to the plain of Jezreel. The Kaukab is crowned by the vast remains of a Crusader castle, and the fall of about 1,890 ft. from the eastern wall of the fortress to the Ghôr at its foot is very precipitous, the edge of the plain below being within the horizontal distance of a mile from the overhanging summit. The soil of the Duhi plateau, and especially of the Kaukab section, is of a rich crumbling volcanic nature, very fertile, with an abundance of springs.

(b) The *Nazareth Range* begins much farther west than the foregoing, and its southern base is marked by the northern edge of the Esdraelon plain, beyond which, eastward, it is followed by W. esh-Sherrâr and W. el-Bîreh. The range forms the water-parting between wâdis Malik and Fejjâs on the north and the N. el-Muqatta' and W. el-Bîreh on the south. The main crest of the range describes an arc running first north-east and then bearing south-east and finally south to terminate in the Qal'ah plateau (alt. 1,179 ft.), at the junction of W. el-Bîreh with the Ghôr; it has gentle slopes on the north and falls gradually towards the west. The highest points of the range are Nebi Sa'in (1,602 ft.) and J. es-Sih (1,838 ft.). Like J. Duhi, this range also has a triple division. The western section embraces the picturesque and quadrangular block of upland covered at one time with oak forest that lies between the Muqatta' and W. el-Malik. The water-parting passes over this block between its south-western and north-eastern corners, and the highest summit probably lies about half a mile north-west of Qusqus (alt. 575 ft.), but its altitude is at present undetermined. The central division, separated from the western by a saddle or depression that connects W. el-Malik where it bends to the west with the recess which the plain of Esdraelon makes northward towards the plain of Buttauf, is the main part of the range and extends eastward to W. el-Madi, tributary of the W. el-Bîreh. From this central mass the ground falls on all sides, and it is here that the Nazareth Range presents its most complex features and consists broadly of a number of spurs radiating in various

directions. One of these spurs is J. et-Tōr or Mount Tabor (alt. 1,843 ft.), east of Nazareth, which is abruptly projected southward into the plain of Eṣdraelon for more than 2 miles. Immediately behind Nazareth, which stands on the southern slope, the hills rise from 1,144 ft. to 1,602 ft. at Nebi Sa'in. Around Nazareth the hills are white and bare, but farther westward they become covered with scrub. The eastern division of the Nazareth Range consists of a series of fertile plateaux in which volcanic elements are largely mixed and extends between wādis Fejjās and Bīreh to terminate in the Ghōr. This part probably nowhere has an absolute elevation exceeding 900 ft., while the plateau of Sha'ārah, the name by which a large section of it is known, has a mean elevation of 600 ft. The range drops to W. Fejjās and the Ghōr by steep escarpments with rocky cliffs and precipices of basalt to 300 ft. below sea-level at the former and 640 ft. at the latter.

(c) The *Tōr'ān Range*, a high limestone ridge, commences at W. Rummāneh (W. el-Malik), considerably short of the western limits of the Nazareth Range, and it extends eastward to and along the western shore of Lake Tiberias, and to the course of the Jordan as far as the descent of W. Fejjās to the Ghōr. The southern base is defined by W. Rummāneh, the plain of Tōr'ān, and the plain of Sahel el-Ahma. The range describes a bold curve parallel with the Nazareth Range and culminates in a single ridge throughout, with steep escarpments towards the plain of Buttauf and Lake Tiberias and with rocky cliffs towards Mejdel, Tiberias, and the Fejjās gorge. The central part of the ridge expands into a broad plateau, around Nimrīn and Hattīn; the culminating points are J. Tōr'ān (1,774 ft.), J. Nimrīn (1,110 ft.), and Qarn Hattīn (1,038 ft.). To the heights of these summits, the depression of Lake Tiberias (–682 ft.), should be added in order to realize their actual elevation above the Ghōr on the east.

(d) The *Shāghūr Range*, a confused mass, is the most northerly of the hills of Lower Galilee, and extends from the lower course of the N. Muqatta' to Lake Tiberias. Its southern base is defined by W. el-Malik, continued eastward by W.

el-Khalladiyeh to the plain of Buttauf and thence along that great plain to W. Sa'd and the deep rocky gorge by which W. el-Hamām reaches the plain of Gennesaret (El-Ghuweir) and Lake Tiberias. The central part of this upland gives its name to the district of Esh-Shāghūr; the western is the district of Shefa 'Amr. The summit of the upland consists of a long plateau running roughly east and west between two parallel ranges. The highest altitudes of the range on the north, naming from west to east are Ras Tumreh (alt. 1,150 ft.), J. Khanzīreh (alt. 1,320 ft.), and J. el-Bellāneh (alt. 1,150 ft.); of the range on the south, J. Deidebeh (alt. 1,781 ft.), Ras Krūmān (alt., 1,817 ft.), and Ras Hazweh (alt. 1,781 ft.). On the long plateau, between the two ranges, is found the fertile plains of 'Arrābeh and Sellāmeḥ, the latter 'covered with olive-groves'.

Two great basins share the drainage of the Mediterranean watershed of Lower Galilee, viz. the Nahr Na'mein and the Nahr Muqatta'; seven main wādis, tributaries of the Jordan, drain the eastern slopes, viz. wādis 'Amūd, Rabadīyeh, Hamām, Fejjās, Bīreh, 'Eshsheh, and Jālūd.

The Mountains of Upper Galilee.

Upper or Northern Galilee may be described broadly as a quadrangular plateau with a rim of culminating ranges on all four sides, and the interior traversed by mountain ridges. It reaches its greatest breadth and altitude in the south. The line of division between this great plateau (25 miles in length, with an average breadth of 15 miles), and the hills of Lower Galilee is indicated on p. 517.

The *Southern Range* commences a few miles to the east of 'Akka and runs almost due east over a length of nearly 25 miles. Its chief elevations naming from the west are Qarn Hennāwi (1,872 ft.), Nebi Heidar (3,440 ft.), J. el-'Arūs, the culminating point of the range (3,520 ft.), the mountain mass of Safed the highest town to the west of Jordan, and J. Kan'ān (2,761 ft.). From the last-named summit the range descends to the gorge of the Jordan between Jisr Banāt Ya'qūb

and Lake Tiberias, in which section the river falls from 43 ft. to 682 ft. below sea-level. It is to be noted that W. et-Tawāhīn intersects this range west of Safed, but this indentation does not really interrupt the continuity of the general elevation. The southern slope is long and deep, especially in the east where the range falls down to W. 'Amūd ; the northern slope towards the interior plateau is much shorter and more shelving.

The *Eastern Range*. The mountain range outlined above is continued almost at right angles along the eastern face of the highland as far as the northern extremity of Galilee. Striking away northward from J. Kan'ān its course is marked by the altitudes of Delāta (2,740 ft.), J. el-Ghābiyeh, Khirbet el-Menāreh (2,806 ft.), J. Hūnīn (2,951 ft.), and Nebi 'Āweideh (2,814 ft.), beyond which the ridge is prolonged along the western side of the Merj 'Ayūn. The range is intersected between Delāta and J. el Ghābiyeh by the remarkable rocky chasm of the upper reach of W. Hindāj and north of this wādi it forms a secondary watershed of Upper Galilee. The main water-parting (see below, p. 526) passes somewhat to the west over J. el-Jermaq, and runs in a sinuous line west of W. Selūqiyeh, affluent of the River Qāsimīyeh. The slope by which the Eastern Range as a whole descends to the Upper Jordan valley is rapid and somewhat precipitous, especially in the section overlooking the Hūleh plain. In its northern section the western flank of the range falls deeply, first into W. Selūqiyeh and then into W. 'Aizaqāneh, the parallel affluent of the Qāsimīyeh. Along the length of the eastern chain runs an important high road from Safed to Merj 'Ayūn, through 'Alma, Meis and Hūnīn.

The *Western Range* strikes away from the Southern Range between the summits of Qarn Hennāwi and Nebi Heidar. The line of summits which marks its course northward is as follows : a short spur dominated by Kisra (2,520 ft.), Khirbet Jubb Ruheij (2,320 ft.), Khirbet ed-Dabsheh (2,050 ft.) and Ma'liya (1,800 ft.). Just north of the last named, the range is intersected by the rocky gorge of Wādi el-Qarn, and 2 miles farther

north the line of heights is taken up by Tell Belāt (2,030 ft.) and Khirbet Belāt (2,467 ft.). From Kh. Belāt the range passes across W. el 'Ezziyeh to Ras Bedendi (2,215 ft.), Ras Umm Qabr (2,341 ft.), and, crossing W. el-Hubeishiyeh, bears NE. to Kh. el-Yādhūn (2,612 ft.), J. Jumleh (2,625 ft.), and Kh. Selem (2,219 ft.). The slope of the range westward is comparatively gentle, the southern part falling down to the plain of 'Akka and the northern to the plain of Tyre. From Kh. el-Belāt two noteworthy spurs project westward, broadening as they descend to the coast. The southern spur passes down under the names of El-Menāreh, Tell el-Kishk and J. el-Mushaqqah, and finally reaches the sea at the notable headland of Ras en-Nāqūrah (the hewn cape) and Ladder of Tyre, where the roadway is cut in the face of the cliff at an elevation of 225 ft., the whole spur being sometimes known as J. el-Mushaqqah. The northern spur terminates at the sea in a line of white cliffs at Ras el-Abyadh, or the 'white cape'. This double spur separates the plain of 'Akka from that of Tyre.

The *Northern Range*, the shortest of the four under description, springs from the Western Range at Khirbet Selem and runs almost due east and parallel with the River Qāsimiyeh, to join the Eastern Range at J. Hūnīn. It has summits rising to 2,300 ft. The range is intersected at about midway by W. Selūqiyeh; its slope on the south is short while the northern is longer and steeper.

The *interior of the plateau* enclosed by the four ranges just described may now be examined. This central region, the lowest parts of which are higher than the summit of J. et-Tōr in Lower Galilee, is traversed by subsidiary ranges or ridges springing in the main from culminating points of the surrounding ranges and running in various directions. There are two main ridges. From J. el-'Arūs in the Southern Range, one ridge runs NW., crossing the interior plateau obliquely to Kh. Belāt and has wādis Qarn and Kerkereh on the SW. and Tawāhīn (W. 'Amūd) and Hindāj on the NE. It is traced through J. el-Jermaq (3,934 ft.), notable as the highest point in Galilee, and J. 'Adāther (3,300 ft.), and may

be called the Jermaq Range from its culminating point. To the NE. of this range lies the great bulk of the central plateau to which belong the volcanic plateaux of Jish and 'Alma as well as the more westerly fertile plains of Meirūn and Yārūn, forming fine tracts of cultivated land with plenty of pasture, woodlands, and orchards. The plateau to the south-west of the Jermaq Range consists of the two main upper valleys of W. el-Qarn between which lies El-Buqei', here a well-cultivated plain. The chain of heights forming the second main interior ridge runs from J. el-Ghābiyeh in the eastern range to Kh. el-Yādhūn in the western range. It rises above 3,000 ft. at J. Meirūn, and divides wādis Hindāj and 'Ezzīyeh from those of Selūqiyeh and Hubeishiyeh and may be called the Meirūn Ridge. A third but shorter ridge runs off NE. from Kh. el-Yādhūn to Tibnīn, W. el-Ma', and beyond.

*Wādi Systems.**

The wādis of Galilee may be classified as follows: (a) those of the western slope falling into the Mediterranean Sea; (b) of the eastern slope into the Jordan valley; (c) those which lead north into the Qāsimiyeh. The watershed of the district as a whole is intricate and not easy to trace, but, broadly speaking, the main water-parting may be outlined as running (from S. to N.), through Zer'in, 'Afūleh, Iksāl (on the western portion of the Nazareth Range), 'Ain Māhil, Shejereh, Lūbiyeh, J. Nimrīn, Shāghūr Range, J. el-'Arūs, J. el-Jermaq, Yārūn, and then in a very sinuous line along the central plateau to the west of W. Selūqiyeh.

(a) *Wādi-basins of the western slope.* The Muqatta' basin receives the drainage of that part of the watershed of Galilee between Zer'in and Ras Hazweh (N. of the Buttauf plain), and on the north is contiguous with the Na'mein basin. On the south it is contiguous with the Mefjir, Zerqa, and Dufleh basins of Samaria (see pp. 479 ff.), and here the watershed follows the crests of J. Fuqū', Belād er-Rūhah and Carmel. The basin embraces the whole of the plain of Esdraelon and the southern part of the plain of 'Akka. The main branch of

the Muqatta' is Wādi el-Malik, a broad and gently sloping valley forming a communication between the plains of 'Akka and Buttauf. It has its head near Tell Bedeiwīyeh (alt. 450 ft.), and has a total length of 10 miles to its junction with the main channel near Harbaj. The Muqatta' is the most extensive of all the wādi-basins of Galilee.

The Na'mein basin, of much smaller area than the foregoing, lies to the north, and its eastern water-parting extends from Nebi Heidar to Ras Hazweh. The greatest width of the basin is about 10 miles from N. to S., and its length 19 miles. The principal channel is W. el-Halzūn, known higher up as W. Sha'ib, and this latter receives two main head-waters which come respectively from Nebi Heidar and Ras Hazweh. Wādi el-Halzūn is noteworthy as forming part of the natural line of division between Upper and Lower Galilee. North of it is W. el-Wazīyeh, important because it is traversed by the principal road from 'Akka to Safed and the passage of the Jordan at Jisr Banāt Ya'qūb ; and on the south is W. 'Abellīn, which falls into the swamps of N. Na'mein as also does W. el-Halzūn. The Na'mein basin forms the north-western part of Lower Galilee.

The Nahr Mefshūkh is a minor basin with its outlet 6 miles north of 'Akka, but it is extremely fruitful and picturesque. It has several branches which unite near El-Kābri, where there is a great fountain which supplies 'Akka with water and irrigates a tract of land of considerable extent.

Wādi el-Qarn has its head-waters in the mountains of the greatest height in Galilee, viz., the summits of 'Adāther, Jermaq, and 'Arūs, and the basin here comes in contact with three great wādis of the Jordan slope, viz., the Hindāj, 'Amūd, and Rabadīyeh. The wādi carries a stream and, in descending to the maritime plain, it contracts to a narrow gorge dominated by the extensive ruins of Qal'at el-Qurein which controls the mountain road which passes between the coast and the interior. The upper basin is drained by two main branches, which rise respectively near J. el-Jermaq and Beit Jenn and unite at Kh. Qarhātha ; the latter arm drains the Buqeī' plain.

W. Kerkereh is a small wādi running parallel with the Qarn and entering the sea just south of Ras en-Nāqūrah.

Wādi el-‘Ezzīyeh takes its rise on the main watershed of Galilee just E. of J. ‘Adāther at a considerable altitude, and for about half its course its direction is NNW., and for the remainder WNW. Descending by a narrow gorge it crosses the plain of Tyre and enters the sea about 5 miles S. of Tyre.

Wādi el-Hubeishiyeh. The wādi, so named from the sea to the village of Jilu, falls into the Mediterranean about $1\frac{1}{2}$ miles N. of Tyre. From Jilu upwards and beyond its confluence with W. el-Ma’, the main channel is called W. el-‘Ashūr; this latter is prolonged southwards beyond Deir ‘Āmis so as to make it the recipient of the Ma’, which is considered as the main headstream of the Hubeishiyeh basin. The W. el-Ma’ descends from the east through a very deep winding gorge which leads up to the village of Safed el-Battīkh (alt. 2,200 ft.); it has its most remote source just S. of Tibnīn. On its northern bank the Hubeishiyeh receives the Hamrānīyeh, its main affluent, which, for the greater part of its course runs parallel with the River Qāsimīyeh.

(b) *Wādi-basins of the eastern slope.* Of these, wādis Bīreh and Fejjās join the Middle Jordan; wādis Hamām, Rabadīyeh and ‘Amūd fall into Lake Tiberias; and W. el-Hindāj into the Upper Jordan between Lakes Hūleh and Tiberias.

Wādi el-Bīreh. The principal channel of this basin rises on the northern side of J. et-Tōr and another branch has its source just east of Nazareth. In its middle course the main channel is known as W. esh-Sherrār, and still higher up as W. el-Madi. The wādi passes from the hills into the Ghōr by a fine gorge, which has the noted summit of Kaukab el-Hawa, ‘the star in the air,’ on its southern side.

Wādi Fejjās drains the Sahel el-Ahma, and, after a steep south-easterly course, falls into the Jordan just below its issue from Lake Tiberias.

Wādi el-Hamām and W. er-Rabadīyeh, two comparatively minor wādis, on descending the hills through gorges, cross the plain of Ghuweir and fall into Lake Tiberias, just north of the

town of Mejdel. The Hamām takes its rise near the village of Hattīn.

Wādi 'Amūd, the principal wādi falling directly into Lake Tiberias, takes its rise in the neighbourhood of J. el-Jermaq, and the basin contains the noted town of Safed situated on a height on its left bank. It has mainly a south-south-easterly course, and, after crossing the Ghuweir plain, enters the lake at Tell el-Henūd. Its middle and upper courses, composed of gorges of striking depth, are known as W. et-Tawāhīn and W. Meirūn respectively. Safed is approached from the south by a small but remarkably picturesque valley, with a N. to S. course, which falls into W. 'Amūd on the left bank, some 6 miles from its mouth.

Wādi el-Hindāj, known in its upper reaches as W. Fārah and W. 'Auba, is the principal wādi leading into Lake Hūleh. It has its head-waters near those of W. el-Qarn, rising from J. el-Jermaq. The wādi, after making a great semicircular curve to the north, descends the mountains by an extraordinarily rocky and precipitous chasm; on reaching the plain, the stream bears suddenly to the eastward and so crosses the Ardh el-Kheit, a small plain, to Lake Hūleh.

(c) *Wādīs running north into the Qāsimīyeh.* Of these the principal is W. el-Hajeir, with its much longer tributary, W. Selūqiyeh. The latter rises at Mārūn er-Ras, and, running N. between the main and secondary watersheds of Upper Galilee, joins the Hajeir in a deep gorge on the east of Burj el-Alawi. W. el-Hajeir itself rises just NE. of Tībnīn and falls into the Qāsimīyeh near the bridge, Jisr el-Qa'qa'iyeh. The length of its basin N. and S. exceeds 14 miles.

E. of Wādi el-Hajeir, the Qāsimīyeh, in bending sharply to the west, receives W. 'Aizaqāneh, which rises near Hūnīn and has a due northerly course of about 6 miles. The other tributary wādīs of the Qāsimīyeh are short and unimportant.

Rivers.

The *Nahr el-Muqatta'* (River Kishon), is the most important river in Palestine after the Jordan. It drains the

Esdraelon plain and runs into the Bay of 'Akka just E. of Haifa. The two main feeders of the river, W. el-Muweili and W. es-Sitt, coming from north-east and south-east respectively, join near Ludd, in the middle of the Esdraelon plain. The spring-head of the former is near Kh. el-Mezr'ah, west of J. et-Tōr, and its length from the sea is 23 miles; the latter feeder has its most remote source in the springs of Jelbūn on the western slope of J. Fuqū', about 35 miles from its mouth, and the springs of Lejjūn, which also feed this affluent, are 19 miles distant from the mouth. The Lejjūn stream is sometimes regarded as the head of the Muqatta'; but the real source is the springs of Mujahīyeh near Kh. el-Mezr'ah, and the total fall of the river from these springs to the sea is about 280 ft.

The Muqatta' passes from the plain of Esdraelon to that of 'Akka through a narrow neck or gorge, some 3 or 4 miles in length, immediately NW. of Tell el-Qassīs, under the cliffs of Carmel, and is here an extremely dangerous river from the boggy nature of the bed. From this point it gradually works away NW., and is fed by numerous fine springs from the foot of the mountains on the left bank, and by others from the low hills on the right bank; most of these springs are perennial, and especially strong are those 'Ayūn es-Sa'ādi and 'Ayūn el-Ward or el-Bass, flowing from among the rocks at the foot of Mount Carmel. West of the village of Hārithīyeh, below the main ford, the river is full of water to the coast, even in autumn, and it flows through a marshy plain between banks 10–15 ft. high, an impassable but sluggish stream having a fall of only 80 ft. in the last half-mile of its course.

Some 5 or 6 miles from its mouth the Muqatta' receives, on the left bank, its most important tributary, W. el-Malik, which comes down a broad and gently sloping valley from the plain of Būttāuf and beyond. This stream is fed mainly by springs near Khalladiyeh, to which lower down a fine supply is added from the springs of Ras el-'Ain. Reaching the plain, the stream becomes sluggish and marshy, and in summer, in the lower part, the water lies only in pools and is not continuous, resembling the Muqatta' in this respect. The springs of

Harbaj are the last along its course before the Malik joins the main stream. Lower down another tributary, the Fūwārah, comes in on the right from the marshes and springs to the SE. of Jidru. The tributaries of the Muqatta' on the left bank below the Lejjūn are numerous but short, and of these mention may be made of W. el-Milh, which divides Carmel from the Belād er-Rūhah and falls into the main stream near Tell el-Qassīs.

The mouth of the Muqatta' is its most curious feature and is constantly shifting. The river is here some 20-30 yds. wide, flowing sluggishly between low banks in very flat uncultivated and sandy ground. The prevailing winds blow from SW. and the dunes are gradually heaping up and advancing on this side, so that the river is always forming new mouths farther north. The lagoons and marshes now existing behind the dunes on the left bank are perhaps the results of the former course. The river breaks through the sand and flows to the sea when the wind is from the east; but, even in wet years, a bar is formed when the wind is in the west, blowing on the shore. Palm trees flourish all along the dunes and round the lagoons at the mouth of the Muqatta'.

The *Nahr Na'mein* is a marshy stream which collects the drainage of the watershed from W. el-Halzūn on the north to W. 'Abellīn on the south, and it is also fed by the marshy springs of 'Ayūn el-Bass, NE. of Jidru. It flows northward through swampy ground for about 5 miles. Close to the shore, about a mile south of 'Akka, the course is double, a loop three-quarters of a mile long having been cut across, which perhaps shows the original mouth to have been farther N. The river is here about equal in volume of water to the Muqatta', but the current is more rapid, and the ford at the mouth deeper. The stream cuts through sand-dunes and near the mouth is surrounded by palms like the Muqatta'. The swampy ground extends along both banks of the whole course of the stream inside the sand-dunes.

The *Nahr Jālūd* is the most important left-bank tributary of the Jordan and is fed by several large springs. At its head

are 'Ain Jālūd, 'Ain el-Meyyiteh, and 'Ain Taba'ūn, all strong springs rising near the village of Zer'in. The water of 'Ain Jālūd is somewhat sulphurous and muddy; that of 'Ain Taba'ūn is of a reddish colour. Lower down, the river is augmented by water from many other springs, the chief of which is 'Ain el-'Āsi on the right bank, one of the finest springs of Palestine coming out from under a rocky precipice on the eastern face of J. Fuqū', where it forms a pool 20 ft. deep, 100 yds. long, and 20 yds. wide. The head of the Jālūd basin lies between J. Duhi and J. Fuqū', and the river waters the Valley of Jezreel as well as the town and a large part of the plain of Beisān. It is a rapid stream in parts and descends about 960 ft. in a length of 12 miles to join the Jordan. Three bridges span the river near Beisān: under the middle one, Jisr el-Khān, of 39-ft. span, there is a waterfall about 17 ft. high and two waterfalls lower down with a drop of 20 ft. East of Beisān the river passes through a narrow gorge, and from this point it flows between steep banks to the Jordan; the gorge is spanned by a bridge with a central arch of 25 ft. The tributary wādīs of the Jālūd are all short and unimportant. The southern edge of the river is undistinguishable among a network of irrigation channels and neglected swamps which extend from Beisān for some 5 or 6 miles southward to W. Shūbāsh (see Chap. xv, p. 474).

Plains.

These comprise the *maritime* plains of 'Akka and Tyre, and the *interior* plains or basins of Esdraelon, 'Arrābeh, Buttauf, Tōr'ān, Rāmeḥ, Ghuweir, Ahma, and Merj 'Ayūn. The plain of Esdraelon has already been described on p. 518 f.

The *Plain of 'Akka* extends for about 20 milés, from Mount Carmel on the south to Ras en-Nāqūrah (see p. 525) on the north, and is enclosed on the east by the hill ranges of Lower Galilee. From Carmel to the town of 'Akka the southern part of the plain is divided between the basins of the N. el-Muqatta' and N. Na'mein, both of these rivers having extensive swamps near the coast. This section is a noted pasture ground and,

in parts, is cultivated with barley and vegetables ; along W. el-Halzūn it is as much as 8 miles wide. The northern continuation of the plain from 'Akka to Ras en-Nāqūrah, a length of 12 miles, is about 4 miles wide and is intersected by Wādis Kerkereh, Mefshūkh, and Qarn. The whole of this section is fertile and well-watered, and has extensive gardens and orchards producing a variety of vegetables and fruits ; but its general aspect is that of a rich but neglected region where game of every kind abounds.

The *Plain of Tyre* extends for some 13 miles along the coast from Ras el-Abyadh to the River Qāsimīyeh and beyond ; it is generally about a mile broad, this width being exceeded only opposite the town of Tyre. It is traversed by the two main wādis of 'Ezzīyeh and Hubeishiyeh. The plain is described by one writer as 'not very fertile, or its cultivation is limited' ; an Austrian Consular Report says that 'it is very fertile'. Here and there are large gardens for vegetables and fruits, besides patches of barley. The plain of 'Akka is separated from that of Tyre for a distance of 6 miles by a spur from the mountains of Upper Galilee which extends westward quite to the sea and ends in lofty white cliffs.

The *Sahel el-'Arrābeh* is a small plain which occupies the south-eastern continuation of the basin of N. Na'mein. It is 3-4 miles in length and gradually expands to a width of 2 miles ; its altitude above the sea probably does not exceed 700 ft.

The *Sahel el-Buttauf*, due E. of the southern part of the plain of 'Akka, is separated from it by the hills of Shefa 'Amr and lies between the steep ridges of the Shāghūr and Tō'rān Ranges. This plain, together with the smaller one of Tōr'an—which lies at a higher elevation about one mile distant on the south—occupies the north-eastern recess of the Muqatta' basin ; both plains are drained by wādis which are connected with the N. Muqatta' by wādis Khalladiyeh and Malik. The plain of Buttauf measures 9 miles by 2 miles ; its altitude is 500-700 ft. above the sea, and it is surrounded by hills which rise to 1,700 ft. It is one of the most fertile tracts

of Galilee : a great marsh which dries up in summer covers a considerable extent of its eastern part and sometimes becomes a lagoon, there being no outlet on this side ; the western portion consists of rich basaltic loamy soil ; extremely fertile and cultivated mostly with wheat, maize, millet, and lentils.

The *Plain of Tōr'ān*, 700 ft. above sea-level, is about 5 miles in length, but seldom exceeds 1 mile in width. On account of its fertility it is sometimes called ' the golden plain '.

The *Plain of Rāmeh* separates in part the hills of Lower Galilee from the mountains of Upper Galilee (see p. 517). The further separation is defined by a succession of wādis which connect the plain with that of 'Akka on the W. and with the Jordan Valley on the E., and which form with the plain a continuous passage for the high road between 'Akka, Safed, Lake Tiberias, and Damascus. The plain which drains partly into the Mediterranean and partly into Lake Tiberias is 6-7 miles in length and generally about a mile broad, with an extreme altitude of 1,200 ft. It is very fertile and was at one time full of fine old olive trees ; the district round is in fact specially noted for the cultivation of olives.

El-Ghuweir, or the plain of Gennesaret, forming, strictly speaking, a part of the Ghōr rather than of Galilee, extends for 3 miles along the western shore of Lake Tiberias, between a rocky promontory and the hill of 'Oreimeh, near the fishing village of Tābghah on the N. and the lofty cliffs of W. el-Hamām on the S. It recedes in a gradual curve from the shore at both ends until it becomes a mile and a half in breadth. It is crossed by wādis 'Amūd, Rabadīyeh, and Hamām, and is watered by the streams of these, of which that of Rabadīyeh is much the largest ; there is also a stream from 'Ain Madawwreh, a strong spring of clear water which rises in the plain between the two latter wādis. The banks of all these brooks are fringed with a profusion of oleanders and lotus trees. El-Ghuweir is an alluvial plain, a kind of delta, formed by the united deposits of the streams of the wādis which open into it and bring down an enormous amount

of sediment of a peculiarly rich quality, being the production of both basaltic and limestone rocks. The plain is in consequence famed for its fertility. The town of Mejdel is situated at its southern extremity.

The *Sahel el-Ahma*, an elevated tract, is situated between Lake Tiberias and W. Fejjās, and slopes gradually down to the latter on its western side. It is covered with basaltic débris forming a soil of exceptional fertility and has an abundant supply of water.

The *Merj 'Ayūn* lies on the north-east borders of Galilee and is treated geographically in Chap. XII, p. 373.

COASTLINE

The Bay of 'Akka (Acre) extends NE. from the promontory of Carmel (Ras el-Kerūm) to 'Akka, a distance of about $7\frac{1}{2}$ miles in direct line or a length of shore of 13 miles, receding south-eastwards for 3 miles opposite the mouth of the Muqatta'. The general nature of the shore is similar right round the bay, viz. a hard sand bottom with a broad open beach of fine sand, banked by dunes a mile broad in places, behind which is the plain of 'Akka. The beach shelves very gently, the water being not more than 12 ft. deep at 100 yds. from the shore; there is a good deal of surf even in fine weather. The N. el-Muqatta' and N. Na'mein empty into the bay—the former about 4 miles east of Ras el-Kerūm and the latter one mile short of 'Akka—and both these rivers have a sand-bar at the mouth and are fordable by keeping well out to sea, where the depth of water varies from $2\frac{1}{2}$ –3 ft. 'Akka, at the northern extremity of the bay, stands on a low promontory projecting about a mile into the sea.

From 'Akka to Ras en-Nāqūrah, $10\frac{1}{2}$ miles, the coast trends slightly east of north and consists of an unbroken line of sandy beaches separated by small rocky points; inland lies the northern part of the plain of 'Akka. Ras en-Nāqūrah, sometimes known as the Ladder of Tyre, is a bold promontory with a round tower on the summit, and is the southern

termination of J. Mushaqqah (see p. 525), which here drops abruptly to the plain of 'Akka and the sea. The 'ras' is 261 ft. high and rises gradually, 3 miles eastward, to a round-topped hill 1,070 ft. in elevation.

From Ras en-Nāqūrah to Ras el-Abyadh, direction NNE., the distance is $5\frac{1}{2}$ miles and between these points the mountains of Upper Galilee extend quite, or near, to the sea and end in lofty white cliffs. Ras el-Abyadh itself, as the name implies, is a strikingly bold headland of white rock forming the northern end of the cliffs. From this point to Sūr, $6\frac{1}{2}$ miles, the coast forms a shallow bay, the shore of which consists in most places of hard sand. The uniformity of this bay is broken only at one point, near the middle, where W. 'Ezziyeh projects seaward. Sūr (Tyre) is situated on what was formerly a small islet but is now connected with the mainland by a sandy isthmus, the peninsula jutting out about $1\frac{1}{2}$ mile beyond the general line of the coast. Several low islets surrounded by rocks and shoal water extend about a mile northward from the town. With the exception of Beirut, Sūr is one of the best anchorages on the Syrian coast. Northward to the River Qāsimiyeh, the character of the coast is similar to the stretch south of Sūr; the Qāsimiyeh has a bar of sand across its mouth in summer.

GEOLOGY

The mountain mass of Galilee is made up of stratified limestone (senonian and cenomanian) layers of varying density and thickness. The region of Nazareth is senonian; but Upper Galilee, north of Safed, is mainly cenomanian. Almost without exception these formations weather rapidly under rain and frost, and speedily disintegrate, while caves, produced by the wearing away of soft underlying layers of limestone, are exceedingly common. At some spots near J. el-Jermaq are deep natural well-like holes in the rock of great depth, similar to the pot-holes found in England and other parts of Europe. Fossils are scarce, but bands of flints and spheroidal nodules of white quartz, varying in size from

that of a walnut to a football, are very common, especially all about the central plateau.

Overlying the limestone there are many patches of trap-rock and basalt. All these 'laval outflows' are on the eastern side of the main watershed. The most extensive area is that centring round the double volcanic peak known as the Horns of Hattīn, see p. 522. From here the lava has flowed out on all sides; it caps the limestone rocks overhanging the western side of Lake Tiberias and spreads south-east down the wide valley of Sahel el-Ahma, while northward it is spread out on the fertile plateau of Hattīn. In the district immediately to the north of this there is another great deposit, probably an entirely independent outflow, through which the 'Amūd and Rabadīyeh streams have cut their way. Safed, though its hills are entirely of soft chalky limestone, is encircled with trap-rock. To the NW. and N. lie the great volcanic plateaux of Jish and 'Alma, each with a rain-filled crater-like pool. To the E. a great outflow occupies the Ghōr between Lake Hūleh and Lake Tiberias, while northward there are terraces of black lava through which limestone hills project in places. This region eastward to Jaulān, where there are also numerous extinct volcanoes, has been a centre of severe earthquakes, as is suggested by the overthrow of many ancient remains.

Another striking feature in the geology of Galilee is the great number of rich alluvial plains—Esdraelon, 'Akka, Buttauf, Tōr'ān, Ghuweir, Hūleh, and Meis. The alluvial deposits of these are often of great depth and extraordinary productiveness. Outcrops of basaltic rock of considerable extent occur here and there in the plain of Esdraelon, notably north-west of 'Afūleh between Ludd and Ma'lūl, on both banks of the river Muqatta'.

WATER-SUPPLY

The water-supply of Lower Galilee is rich, especially in the lower ground—the plain of Esdraelon, valley of Jezreel, and southern part of the plain of 'Akka—which is watered by the

Muqatta', Na'mein and Jālūd rivers. The main sources of these rivers are discussed on pp. 529 ff. But even in the hills good springs are plentiful : the southern slopes of the Nazareth hills abound in springs of good water ; there are copious springs at many of the villages and towns, e. g., at Nazareth, Seffūriyeh, Reineh, Hattīn, Ferrādiyeh, &c. The water-supply of the hill district north of W. el-Malik is derived almost entirely from wells and cisterns near the villages, the only springs, and those not very large, being 'Ayūn el-Kaukab to the south-east of the village of that name. Some few villages in the lower lands have only open ponds which act as rain reservoirs, the water of which is unsafe for drinking purposes.

The higher mountain plateaux of Upper Galilee as a whole are comparatively deficient in springs. Even where springs are present water is scanty, and here many of the villages are entirely dependent on artificial rain-filled pools. The large villages of Rumeish, Hūnīn, Teir Shihah, Samhāt, 'Alma and many others rely solely on such pools for their water for domestic use and for their cattle. The large village of Bint Umm Jubeil has a pool so considerable that even in September people can bathe in it waist-deep in water.

Most of the deep wādīs of Upper Galilee carry streams fed by springs of a more or less permanent character, as follows. On the western slope, the N. Mefshūkh derives its water mainly from very large springs at El-Kābri from which 'Akka gets its supply by an aqueduct. W. Qarn carries a stream strong enough to turn several mills which commences at the very copious spring of Ras en-Neba' ; where this stream enters the plain of 'Akka at Khirbet 'Abdeh it is 20 yds. in width and has a very strong current. The perennial stream in W. 'Ezziyeh is derived mainly from the spring En-Neba' which gives a plentiful supply of water and W. Hubeishiyeh also carries a perennial stream. On the eastern slopes, the stream in the lower course of W. el-Bīreh probably runs throughout the year, while in W. el-Madi, one of its upper feeders, there is a good stream which commences at Khān et-Tujjār and is fed by 'Ain el-Madi and 'Ain el-Jizān. W. Fejjās derives its water

from the Sahel el-Ahma, the main springs of which are those of 'Ayūn el-Basās. W. el-Hamām has a broad perennial stream fed largely by the strong spring of 'Ain es-Sarār. W. er-Rabadiyeh carries a fine perennial stream from 'Ain er-Rabadiyeh, 4 miles from its outlet; this stream serves in large part to irrigate the Ghuweir plain and to turn several mills. W. Sellāmeḥ, an upper reach of the Rabadiyeh, carries a small perennial stream for a short distance. In the Ghuweir plain itself between the course of the Hamām and Rabadiyeh rises the noted spring of 'Ain Madawwreh, temp. 73° Fahr., from which a perennial stream, ordinarily about 3 ft. deep and swarming with fish, runs through a thicket of tangled brushwood to the lake. W. 'Amūd carries a stream which, although liable to considerable fluctuation, is perennial and often abundant. W. et-Tawāhīn, the middle course of the 'Amūd, carries a stream which takes its rise near Meirūn and is augmented by numerous springs lower down till it becomes a stream of considerable size with a rapid fall all the way. In the north-east corner of the Ghuweir plain is the copious warm spring of 'Ain et-Tīneh, temp. 82° Fahr., of brackish water. Safed, situated in the 'Amūd basin, has many springs in its neighbourhood, some of which are very good ones. W. el-Waqqās derives a stream from 'Ayūn Waqqās, but in summer very little of its water reaches Lake Hūleh. The stream of W. el-Hindāj is dry in summer, but a permanent stream runs in W. Fārah, one of its upper reaches, fed by the springs of Jish, 'Ain el-Balāt, and Neba' 'Auba. For the supply of water from W. Bareighīt and the N. Hāsbāni, see description of the Jordan, p. 648 f.; and for the N. Qāsimiyeh, see pp. 402 ff.; W. el-Hajeir, the principal southern affluent of the latter river, carries a strong stream rising at 'Ain el-Khān.

In the coastal plains fresh water can be obtained by digging holes along the sea-shore. At Ras el-'Ain, near the coast 3 miles S. of Tyre, there are very fine springs which supply an extensive area with water; the water-supply of ancient Tyre came from here and some of the reservoirs and part of

the aqueduct remain and the present town is still supplied from this source. 'Ain es-Sitt is a good perennial spring about half a mile east of 'Akka.

CLIMATE

The general climatic conditions of Galilee differ but little from those of Judaea and Samaria and there is in this district also the same marked contrast between the atmospheric conditions in the lowlands and in the highlands. The rainfall of Galilee as a whole is somewhat higher than in the south of Palestine ; it increases also from the coast to the ridge and diminishes eastward.

Records of temperature and rainfall have been taken at Nazareth situated in the hill zone and Tiberias in the Ghôr, and the following table serves to show the somewhat marked contrast in the climate of the two localities :

	<i>Altitude in feet.</i>	<i>Temperature (Fahr.).</i>		<i>Rainfall.</i>	
		<i>Mean yearly.</i>	<i>Yearly range.</i>	<i>Mean yearly.</i>	<i>No. of rainy days.</i>
Nazareth . . .	1,608	65.3°	28°	27	63
Tiberias . . .	—682	72.5°	32°	20	54

The coastal belt between Haifa and 'Akka is very marshy and damp and the population is decimated by malaria ; on the other hand the climate of the plateau is dry and invigorating.

Dew falls copiously at night over the district in all the late summer months : such dew occurs all over Palestine but nowhere in such plenty as in the highlands of Galilee. One writer describes it as 'the product of the clouds which are blown often from the north, from Hermon, and settle on the highlands after sunset' (see also p. 31). The cloud may be seen overhead as the evening closes in and, in the early morning, the mist lies thick over the ground and fills all the deeper valleys. How heavy is the dew may be judged from the fact that a recent traveller, when traversing the central ridge of Galilee northward towards Hermon in

the month of September, found it inadvisable on any night to sit without a mackintosh outside the tent after sunset, and every morning the tent canvas was soaked with water, the moisture dripping audibly off the edge. The comparative lack of water for agriculture in Upper Galilee is largely compensated for by these 'dew clouds'.

The following particulars concerning the climate of Safed (alt. 2,750 ft.), are given by a doctor long resident there.¹ 'The shade temperature, at the hottest part of the day in summer, occasionally rises to 100° Fahr.; but, except when the sirocco prevails, the nights are cool. The daily range of temperature is sometimes very considerable: a temperature of 100° at mid-day has been known to be followed by 58° at midnight. During December and January there are occasional frosts and sometimes a heavy fall of snow which, however, does not lie as a rule for more than a day or two. No records of rainfall have been kept at Safed, but it probably averages rather more than that of Jerusalem. Given proper sanitary conditions, Safed, by virtue of its situation, might become a health resort for the whole of the northern part of Palestine.' Capt. W. Ormesby Gore (1917) gives the annual rainfall near Safed as 31.5 in.

NATURAL PRODUCTS

Minerals.—Galilee, as far as is known, has few mineral resources calling for special mention. With the exception of building stone of various kinds, Galilee is even less rich in minerals than the two districts of Palestine previously described. Bitumen is found around 'Aidib in W. el-Hajeir and a few other places, and there are quarries of yellowish marble in the kaza of Safed.

Flora.—The most common trees and shrubs are the dwarf-oak of several kinds, terebinth, carob or locust tree, wild olive and fig, nettle tree, and arbutus, all capable of developing to a large size; the hawthorn, storax, bay-laurel,

¹ Capt. Anderson, R.A.M.C.

myrtle, caper, sumach, and lentisk. The watercourses in many parts are adorned by great masses of oleanders, willows, planes, and, occasionally, white poplars. The sycomore fig, once said to have been a characteristic product of Lower Galilee, is now scarce in these parts. Groves of sacred terebinths occur in many places and the thorny acacia, when covering a holy tomb, often attains noble proportions. The north-west part of Galilee is (or was) an especially richly-wooded district and the valleys here are frequently clothed from base to summit with brushwood. The Shāghūr range of hills and also those E. of Rāmeḥ are covered with scrub growth now replacing what was only a few years ago a forest of fine trees. On the north-east corner of Galilee, in the Hūleh basin and Merj 'Ayūn, are large clumps of white poplars, the growing of which, as timber, is a profitable industry. The area from the foothills of the plain of 'Akka to Nazareth, also the NW., NE., and E. slopes of J. et-Tōr, were wooded, but it is said that the Turks cut down practically all the trees during the war. Immense tracts in the marshes of Hūleh are covered with a dense growth of papyrus.

Fauna.—Besides the animals and birds common to other districts, the following call for special remark. A few fallow deer are to be found in the wooded region north-west of J. et-Tōr. The hunting leopard or cheetah is scarce, but it is said still to haunt the mountains of Upper Galilee and the neighbourhood of J. et-Tōr. The striped hyena is common and the tawny fox ranges the wooded districts of Galilee and the country beyond the Qāsimīyeh. The weasel is very common round about J. et-Tōr. The common otter, according to Tristram, appears to be confined to the shores of Lake Tiberias where it finds abundant food. The grey Syrian bear has become very rare in Palestine: Tristram only once saw it in Galilee in a ravine near the Ghuweir plain; it is, however, said to be occasionally found in J. el-Jermaq. Various kinds of bat are more common in Galilee than in other districts; they are extremely numerous in the caves of the wādis opening on

Lake Tiberias and the plain of 'Akka as, e. g., in W. el-Qarn. Wild duck and snipe are found in great numbers in the marshes of the Muqatta' and Na'mein Rivers. The pelican is particularly conspicuous around Lake Hüleh.

Fish are plentiful in Lakes Tiberias and Hüleh and in certain parts of the Upper Jordan ; see further, p. 549 f.

AGRICULTURE

The greater natural fertility of Galilee as a whole, as compared with Judaea, may be ascribed to :

(1) Its comparatively excellent water-supply ; even where springs are scanty the dew is very heavy.

(2) The gentler slope of the hills and wider plains.

(3) The deep rich soil in which is mixed, in many parts, the detritus of volcanic rock.

(4) The fact that over much of the hills the natural growth of brushwood has been left. In Judaea, where every foot of soil had to be utilized, this natural growth has in many places been entirely destroyed to allow of the hills being terraced for cultivation ; but, when the terraces fell from neglect, the earth was gradually washed down the hill-side to the valley below.

Speaking generally of the fertility and natural growth of Galilee, Dr. George Adam Smith writes as follows : ' Take Lower and Upper Galilee, with their more temperate climate (than the Ghôr). They are almost as well wooded as our own land. Tabor is covered with bush, and on its northern side with large, loose groves of forest trees. The road which goes up from the Bay of Carmel to Nazareth winds, as among English glades, with open woods of oak and an abundance of flowers and grass. Often, indeed, as about Nazareth, the limestone breaks out not less bare and dusty than in Judaea itself, but over the most of Lower Galilee there is a profusion of bush, with scattered forest trees—holly-oak, maple, sycomore, bay-tree, myrtle, arbutus, sumac, and others—and in the valleys olive orchards and stretches of fat cornland. Except for some trees like the sycomore,

Upper Galilee is quite as rich. It is an undulating tableland, arable, and everywhere tilled, with swelling hills in view all round, covered with shrubs and trees. Above Tyre there is a great plateau, sloping westwards. It is all cultivated and thronged with villages. To the south of W. el-Ma' the country is more rugged, and cultivation is now pursued only in patches; yet even here are vines and olives. Even on the high water-parting between Hūleh and the Mediterranean, the fields are fertile, while the ridges are covered with forests of small oaks.'

Products.—The whole of Lower Galilee is of exceptional fertility. The plains are splendid arable lands growing mainly cereals, sesame, and vegetables; those of Maghār and Rāmeḥ are noted for their great groves of olives, a product for which Galilee was always celebrated. Vines are not to-day widely cultivated except around Rāmeḥ and, to some extent, Nazareth.

The products of the mountain region of Upper Galilee are many—chiefly wheat, barley, dhura, lentils, cucumbers, pumpkins, and melons. Olives are plentiful as far north as Kefr Bir'im, but north of this, on the central plateau, they are very scanty; there the people either purchase olive-oil, or use oil which they produce themselves in considerable quantities from sesame. Figs are cultivated everywhere. Mulberries, walnuts, apricots, pears, and other fruits flourish in favourable spots. Oranges, lemons, and citrons are grown in the deeper warmer valleys, notably round Safed. Vines flourish also in this district, and many acres of vineyards are now yielding well in several of the Jewish colonies, especially at Rosh Pinnāḥ (Jā'ūneh), and 'Ain ez-Zeitūn, near Safed. Tobacco is grown extensively, especially in the north and west, but solely for local use.

Agriculture by Districts.—By far the most extensive and important agricultural area of Galilee, if not also of the whole of Western Palestine, is the Plain of Esdraelon with which may be included the Valley of Jezreel. The chief crops here are wheat and barley; considerable quantities of sesame

are also grown, besides beans, lentils, peas, some cotton and castor-oil, and every kind of vegetable. It is the most important sesame-producing locality in Palestine. The plain, however, does not at present yield to its utmost capacity and there is no doubt that with improved methods of irrigation its productivity could be very considerably increased. The fertility of the soil of Esdraelon has led to more than one attempt at its exploitation. Nearly half a century ago the northern half of the plain was bought by a Greek, who obtained some 22 of the neighbouring villages and their lands. But, though he continued to employ the fellahin as labourers, no radical improvements were made in method or implements beyond the construction of barns and farm-buildings in some of the villages. The land and buildings passed to his heirs who are still considerable landowners in this district.

It is noteworthy that, before the year 1911, the plain had not attracted Jewish colonization, but about that time a Jewish colony was founded at El-Füleh near the important railway junction of 'Afüleh on the eastern border. The majority of Jewish colonies of Galilee have been founded farther east in the high land W. of Lake Tiberias, extending to the eastern foot of J. et-Tör and, it is in this district, with its richer and nearly black volcanic soil, that the best grain is produced—far finer than in the plain of Esdraelon itself and almost comparable with the nearly transparent grain of the Haurān.

Water is abundant in Esdraelon, but it is little utilized. With comparatively small expenditure, it is considered that the flow of the water of the Na'mein and Mugatta', which at present runs largely to waste into the sea, could be regulated and the output of the plain considerably increased by improved methods of drainage and the introduction and larger use of modern irrigation plant.

The middle arm or extension of Esdraelon eastward, the Valley of Jezreel, is also exceedingly fertile, especially its gradual northern slope, and produces rich crops of wheat.

It receives abundant water, particularly the eastern part, from the N. Jālūd as well as from very numerous fine springs rising below the northern face of J. Fuqū'.

In 1911 increased attention was paid to the possibilities of agricultural enterprise in the Esdraelon plain and preliminary arrangements were made with some of the larger proprietors to let their property for development. Hopes were entertained of successful cotton cultivation, in view of the abundant water-supply and of the fact that the soil of the plain, as also of the Ghōr round Beisān, was reported by Egyptian experts to be admirably suited to the culture of cotton. Some experiments were conducted at Jidru in the south of the plain of 'Akka in particular, as well as at Beisān. The trials at Jidru did not give altogether satisfactory results ; cf. p. 489 f.

The comparative productivity for grain of the Esdraelon plain, though good relatively to other districts of western Palestine, is much lower than that of the Haurān. In the Haurān a 30 fold or even a 35 fold return of wheat is not uncommon, while 40 fold up to 50 fold are attested on reliable evidence. Bearing this in mind, it may be said in general terms that what in the Esdraelon plain, as in the other fertile areas of Palestine, could be reckoned as a good harvest would pass in the Haurān as but a poor return.

Between Haifa and 'Akka there is a belt about 6 miles wide of very rich land, but badly in need of draining ; cultivation is patchy and the products are mainly sesame and vegetables. 'Akka, with sweeter water than Haifa, produces vegetables in great abundance. The foothills from the plain of 'Akka to Nazareth are of senonian soil and very poor for agriculture, but there is grazing for sheep and goats on rank annual grasses and certain wild leguminous plants (clovers). In the summer the ground looks absolutely bare, but animals—even horses—pick up the seed-pods and bulbs (wild onion and crocus), which are prevalent in the district. Olives and vineyards are a failure here. Around Nazareth the main products are figs and olives, but neither are produced on

a sufficient scale for export. In the Sahel el-Buttauf and the other interior plains, cereals (wheat and millet) are chiefly grown. East of the Buttauf to Tiberias the soil is volcanic and is therefore either barren or grain-growing. Much of the land west of Tiberias is in Jewish hands and devoted chiefly to grain and almond growing, under more modern agricultural methods. The area from the south end of Lake Tiberias towards Beisān is canalized in a primitive way and here a relatively large crop of early vegetables is produced and sold at Safed, Tiberias, and even Damascus. In the plain of Ghuweir water is very abundant. Jewish colonists own land around Mejdel (see I. D. 1203) and German Roman Catholic societies near Tābghah farther north. Barley is raised and, on irrigated portions, maize, melons, marrows, tomatoes, peppers, egg-plants, and *bāmiyeh* (*Hibiscus esculentus*, L.); but a large part of the plain is still given over to thistles and weeds; fruit-culture was once a flourishing industry. North-west of the plain of Ghuweir, between the lake and Safed, is an almost absolutely barren stretch of country. Around Safed the products are barley, wheat, lentils, and dhura and olive-trees are everywhere cultivated, the soil being rich red loam with here and there whitish shale-like patches. Fruits and vegetables in great variety are grown in the district: lemons in some of the valleys (particularly in a valley known as W. el-Leimūn an upper reach of W. 'Amūd), grapes, figs, apricots, peaches, almonds, and pomegranates. The chick-pea is a very common crop around Safed. At Rāmeḥ are the largest and richest olive groves of Palestine. North of 'Akka as far as Sūr are rich plains cultivated largely by the Arabs and considerable irrigated areas here produce, in addition to vegetables, mulberry trees for silk production. This is the most southerly district of silk production in Syria. East of the plains is the rocky and rather barren region of Belād esh-Sheqīf; the country, however, is thickly populated, largely by Metāwileh, and a certain amount of tobacco is grown. East again, near Hūleh, we reach an important fig-producing area; large quantities of figs are dried and

sold outside the district. The olive groves here are also extensive.

For further details of the agricultural activities of the Jewish colonies of Galilee, see I. D. 1203.

Stock-rearing.—According to Cuinet (1896), the numbers of head of stock in Galilee were as follows: oxen and cows, 7,900; buffaloes, 800; horses, 1,400; donkeys and mules, 4,700; sheep, 92,200; goats, 168,000; camels, 550. Sheep are most numerous in the plain districts of Sūr and Merj 'Ayūn; goats in the hilly districts of 'Akka, Sūr, Safed, and Tiberias. The horse is in most common use around Tiberias and Safed; donkeys and mules in the Merj 'Ayūn, which is noted for its breeds of these animals.

INDUSTRIES

Manufacturing

Next to agriculture, the fishing industry of Galilee is by far the most noteworthy. Manufacturing industries are few and not of great importance. At 'Akka, brass- and copper-ware are made to a small extent. At Nazareth, which is the centre of an agricultural area, the natives are engaged in such handicrafts as the making of sickles, knives, ploughshares, &c. At Safed dyeing is carried on, as also the making of shoes for the Bedouin; it is also a centre for the making of pack-saddles and harness, and for the weaving of coarse goat-hair cloth for Bedouin tents; copper utensils are made, and Safed is also noted for its *halāweh*, a sweatmeat manufactured from sugar and ground sesame seed. The weaving of considerable quantities of mats out of split papyrus reeds is an industry among the Ghawārneh Bedouin who camp in the plains of Hūleh; of these mats, the people construct their own houses and dispose of great numbers as floor mats to the fellahin of the mountains.

Olive-oil pressing. A large proportion of the olive crop goes either to Nāblus or Haifa for treatment, but there are, in addition, numerous small local oil-presses, notably in the kaza of Sūr.

Flour-milling is carried on on a considerable scale at Nazareth, where there are three mills worked by steam- or oil-engines, and capable, together, of turning out from 400–500 sacks of flour a day.

Fishing

Fish abound in Lake Tiberias, Lake Hūleh, and the Upper Jordan: the lakes of Galilee have been famous for their plentiful supplies all through history. The fishing centres of Lake Tiberias are Tiberias on the western shore, and Tābghah and Batīhah ('Ajlūn) on the northern shore of the lake, but at the former place the industry is only followed to any considerable extent during the winter and early spring months and is not nearly so important as at the two last-named places. The little bay of Tābghah, about 8 miles N. of Tiberias town, during the early months of spring is remarkable for the number of fish which positively swarm there, attracted by the warmth of the water loaded with vegetable débris which the copious hot springs here pour into the lake. The water some yards out teems with larger fish, the shallows close in-shore with small fry. From mid-January to mid-April the fishermen make Tābghah their head-quarters, erecting a few tents or reed-huts on the shore. But the fishing of Batīhah is by far the most important on the whole lake. Here, close to the mouth of the Jordan, as well as in the waters of that river, fish may be taken all the year round though varying in kind according to season. This rich fishing ground is near the ruin called Et-Tell which is generally acknowledged to be the site of Bethsaida. The fishermen who come from Tiberias make temporary reed shelters for themselves during the fishing season. In Lake Hūleh and in the 'Ain el-Mellāhah stream which runs into this lake at its southern end, the fishing is carried on by Bedouin fishermen who, during the season, occupy reed-huts on the western shore of the lake.

The main varieties of fish taken in both lakes are three—a fish allied to the wrass locally known as *musht*, catfish, and

carp. Almost all the fish are caught by means of nets, of which there are three kinds—the cast-net, draw-net, and *mubatten*, the latter a compound form of net composed of various sizes of mesh peculiar to this locality; the old-fashioned method of poisoning the fish first and then collecting them is also sometimes resorted to. The Tiberias fishermen are quite a class by themselves and are fine stalwart men, mostly Moslems, with a few Christians; the business is hereditary in certain families and the nets are made and mended by the women of their households. From Lake Tiberias the fish is carried fresh to Safed (where there is the greatest demand), Nazareth and other places in Galilee; it is also dried and salted for the Damascus and Jerusalem markets. From Lake Hūleh and ‘Ain el-Mellāhah the fresh fish is sent to Safed, Merj ‘Ayūn, and even Damascus, and salted fish to Zahleh and other places in the Lebanon. During summer, fresh fish cannot be sent far from the lakes: most of it from all sources goes to Safed in this season. The average price of the best fish in Safed is about 4*d.* per lb., but cat-fish, which is always cheaper, may be purchased at one-third the price when it is plentiful. The Government tax on all fish taken from Lake Tiberias and the adjoining Jordan is one-fifth. Like most taxes in Palestine, it is farmed out and the ‘*ashshār*, or tax-collector, pays £T.1,000 every three years for his right of taking one-fifth of all fish caught. The fishing rights of Batīhah are owned by a pasha in Damascus, and a Jew of Safed paid 200 napoleons annually for the exclusive control of all the fishing there. The Lake Hūleh and ‘Ain el-Mellāhah fishing rights are under the *jiflik* and are let annually to a Christian for 260 napoleons.

TRADE

Nearly all the exterior trade of Galilee finds its inlet and outlet at Haifa, q. v. Samaria, pp. 492 ff. ‘Akka, considered formerly a port of some importance in relation to Syrian trade, is now eclipsed commercially by the Samaritan port and has practically no direct foreign trade. Up to 1906

the value of the trade of 'Akka exceeded that of Haifa, but since that year, marked by the opening of the Haifa-Der'a railway, it has steadily declined. At the outbreak of war the commerce of 'Akka had degenerated to a small coasting trade carried on by sailing craft and by a small coasting steamer that called occasionally ; the exports consisted chiefly of locally grown grain, sesame seed, and olive-oil. Sūr, though it has good anchorage sheltered from practically all winds except the north, is now of very minor importance as a port. Even for some years before the war it had but little commerce and no regular lines of steamers called—the port was occasionally visited by small steamers carrying on the local coasting trade, but most of the trade was done by small sailing craft, of which there were about thirty. The trade of Sūr had been almost entirely directed to Beirut ; but a small amount of locally grown cotton and tobacco, and millstones were the chief articles exported in normal times.

In the interior of Galilee, the only distributing centre of any importance at all is Safed. But though the largest town in Galilee, owing to its isolated position and lack of good communication with the coast—the roads leading to it up to quite recent times were mostly mere goat tracks—it is at present not a great distributing centre. There was much talk (1913-14) about making a carriage road to Safed from Lake Tiberias, where there is communication by a small steamer belonging to the Haifa-Der'a railway, between Tābghah and Semakh. With such a road the prosperity of Safed would greatly increase. Certain sections at least of this road have been constructed, but it is not clear from information at present available whether complete communication has been established. Most of the trade of Safed was at one time in the hands of the Jews but, of recent years business, especially among the fellahin and Bedouin, has passed into the hands of Moslems as they can afford to give better credit. A good deal of *semen* is sent out from this neighbourhood to Constantinople and other places.

Most of Lower Galilee gets its supplies direct from Haifa, and sends its products there by rail. 'Afūleh, a junction station on the Haifa-Der'a railway, in a very central position, is becoming an important business centre. The population of the country districts of Galilee being denser than the rest of Palestine, the aggregate surplus products available for export is small as compared with Samaria and Judaea (Ormesby Gore).

INHABITANTS

Population.—No very definite figures are available. According to the estimates at the time of the P. E. F. Survey (1877), the population of Galilee was 103,000. As to this figure, Dr. Masterman (1909) says: 'These numbers may with confidence be doubled. Allowing for young children not included in the Government returns, the population of this large area of 1,341 sq. miles, with its 312 towns and villages, may with safety be estimated at about 250,000. The area includes the whole district (kaza) of Tyre and all the coast to Carmel. The denseness of the population by the above estimates works out at 186 inhabitants to the sq. mile.' Dr. Masterman's estimates were made on the basis of statistics collected from the Safed district (comprising one city and 39 small towns and villages), in which he found that the population had increased from 15,530 at the time of the survey to 34,055 in 1909.

According to Cuinet (1896), the total population of the kazas of Sūr, Merj 'Ayūn, 'Akka, Tiberias, Safed, and Nazareth, the exterior boundaries of which taken together are roughly though not absolutely coincident with the area under description, amounted to 78,197. Ruppin, 1915 (see footnote, p. 458), gives the population of much the same area as 176,919. If Dr. Masterman's figures err it is possible that they do so on the side of excess.

Cuinet gives the following categories as composing the total population of 78,197: Moslems, 30,383; Jews, 15,437; United Greeks, 10,431; Orthodox Syrians, 9,176; Maronites,

4,111 ; Orthodox Greeks, 3,282 ; United Syrians, 1,600 ; Latins, 1,446 ; Foreigners, 737 ; Druses, 653 ; United Armenians, 530 ; Protestants, 210 ; Gregorian Armenians, 201. These figures are here cited as they serve to give some general indication of the proportions of the various sects of which the population of Galilee was composed in 1896.

Towns and Villages.—Galilee is full of villages, the mean population of which is about 500. A village of 1,500 inhabitants is considered a very large one and some of the villages have as few as 50 adult inhabitants. The largest towns in the whole of Galilee, with the exception of Safed and possibly of Nazareth, contain a smaller population than 15,000. The following are the most populous centres :

Safed. Pop. variously estimated at 20,000–25,000, of whom, according to Trietsch,¹ 16,000 Moslems and 8,000 Jews. Dr. Masterman gives : Jews, 11,000, a considerable number of whom are foreign subjects (2,500 Austrian, 1,000 French, 600 Persian, 150 British, and 100 American) ; a few Christians (some 400 Greek Catholics, a few families of Orthodox Greeks, and a few Protestants) ; and some Kurds and Algerians. Capt. Anderson, R.A.M.C., says the following is probably a correct estimate of the chief communities : Jews, 12,000 ; Moslems, 8,000 ; Christians, 300. About three-fourths of the Jews, he says, are ‘Yiddish’ speaking and come from Poland, Russia, and Austria and the remaining fourth are of Spanish origin ; the Christians are mostly Greek Catholics. The W. O. Handbook on Northern Palestine and Southern Syria, April 9, 1918, gives : Safed, pop. 20,000 : including 7,000 Moslems, 400 Greeks, and a few Protestants ; the remainder, Jews.

Nazareth. Pop., according to Trietsch, 12,000 (1909), of whom 7,000 Christians and 4,000 Moslems ; pop., according to Ruppin, 20,000, of whom 10,000 Christians.

‘Akka. Pop., according to Trietsch, 11,000 (1909), of whom 2,400 Christians and the rest mostly Moslems of a fanatical disposition ; total pop., according to Ruppin, 12,000.

Sūr (Tyre). Pop. variously estimated at 6,000–8,000, of

¹ *Levante Handbuch*, Davis Trietsch, 1914.

whom, according to Trietsch, 3,200 Moslems and 2,800 Christians.

Tiberias. Pop., according to Ruppın, 8,000, and according to Trietsch, 10,000 ; chiefly Jews.

Communities and Sects.—In Lower Galilee most of the inhabitants are *Moslems* (Orthodox Sunnites), *Christians* (mostly either Greek Orthodox or Greek Catholics), or *Jews*.

In Upper Galilee new elements appear. As a whole, in the north-west districts, the Christians are *Maronites* and the Moslems are *Metāwileh* (Shi'ites). Both sects agree in fanatical intolerance of all others. The Maronite centres are Kefr Bir'im, Rumeish, 'Ain Ibl, and Dibl. Of the Metāwileh, Bint Umm Jubeil, north of Wādi el-Hindāj, is one of the largest centres ; but the sect is in a majority all over the northern area of Upper Galilee—at Tibnīn, Ya'ter, Harīs, Haddātha, and Khirbet Selem among other places—and in the environs of Tyre it constitutes 70 per cent. of the population. Their villages are generally mean, huddled, and poor in comparison with other settlements ; but they have a rich and more enlightened class residing in Tyre and Beit Umm Jubeil. *Druses* are found at Rāmeḥ, Beit Jenn, El-Buqei', and elsewhere. One writer states that the Druses have fifteen settlements in Galilee ; their spiritual head is the Sheikh 'Āqil of Jūlis. *Algerians* have settlements at Ras el-Ahmar, 'Alma, Deishūn, and Kefr Sabt. *Circassians* live in a separate village of 'Alma and at other spots. *Ansariyeh* and *Turkomans* are found in certain villages on the extreme north-eastern border.

For information as to the distribution and populations of the Jewish colonies in Galilee—districts of Safed, Tiberias, Lake Hūleh, and Merj 'Ayūn—see I. D. 1203.

As a rule a village is peopled entirely by one sect, or at most by two, and the several communities never intermarry. Though the basis of separation is religious differences, there is a considerable physical difference that enables one who knows the people well to recognize at once to which community any individual belongs. Taken as a whole the people of Northern Palestine are, physically, finer than those of Southern Palestine

(Masterman). Their costumes also, which are very varied and often extremely picturesque, are superior to those of the fellahin of the south.

Bedouin.—The nomadic element in Galilee is confined almost wholly to the coastal plains and to the eastern slopes. There is a very large number of small tribes, including: Ghawārneh and 'Arāmsheh, in the western plains; Delā'ikeh, Waheib, Semakīyeh, Zengharīyeh, Hasanīyeh, Zubeid, Hamdūn, and Ghawārneh on the eastern slope and in the Ghōr, See further p. 660 for tribes of the Ghōr in general.

CHAPTER XVII

HAURĀN AND JAULĀN

THE eastern section of southern Syria includes all the country east of the Central depression as far as the edge of the Hamād, from Wādi Zābirāni and the Nahr el-'Awaj in the N. to a line a little below Akaba in the S. Beyond its southern frontier lies the ill-explored and almost uninhabited region of northern Hejaz. Its eastern border, in the region of Haurān, includes El-Leja and Jebel ed-Drūz; southward the tract becomes much narrower and the frontier is vague, but for practical purposes may be taken as defined by the Hajj road and the Hejaz railway.

Under the Turkish administration the whole was comprised in the vilayet of Damascus, the southern portion as far as the Nahr ez-Zerqa forming the sanjaq of Kerak, all to north of that wādi belonging to the sanjaq of Haurān.

It has been customary to divide this area into four sections: two northern, the Haurān with the Jaulān, and the region between N. Yarmūk and N. ez-Zerqa; two southern, the region between N. ez-Zerqa and Seil el-Hesa, and the more barren tract extending from the latter wādi to the Hejaz frontier. A quadruple division is here retained, but with one important change of boundary. It has been observed that the high plateau of Moab, with its almost even surface, really ends at the line of Wādi Hesbān (G. Adam Smith); beyond this line, the physical affinities are more and more with the broken and wooded country farther N.; and when the watershed running E. from J. Ōsha' has been crossed, it is plain that the southern side of the Zerqa in the Belqa cannot properly be divorced from the northern in 'Ajlūn. The following modified division has therefore been adopted:

- i. *Haurān and Jaulān.*
- ii. *'Ajlūn and Northern Belqa* (the region between Nahr Yarmūk and Wādi Hesbān).
- iii. *Southern Belqa and Ardh el-Kerak* (the region between Wādi Hesbān and Seil el-Hesa).
- iv. *El-Jibāl and Esh-Shera*, comprising the high country between the 'Arabah and the Hamād.

The adjacent regions of Haurān and Jaulān stretch from the Damascus plain southward to the Yarmūk gorge and to the unexplored region E. of 'Ajlūn. Taken as a whole they, along with the Damascus plain, constitute the most fertile and productive region in Syria, the arable plains of Haurān and the pasturage of Jaulān being famed throughout the land. The region is part of the cultivable belt on the western verge of the desert, through which are carried the great trunk routes and on which are found all the great cities of the Syrian hinterland.

Railways are here comparatively well developed, and the line running S. through the heart of the Haurān communicates with the ports of Beirut, Haifa and Jaffa. Since these lines have been built, many of the villages on the plain have largely increased, and many, previously abandoned, have been reoccupied, while important trade centres have been established.

Throughout the Haurān, extensive ruins of ancient cities are everywhere found, bearing testimony to a past prosperity which could with little difficulty be revived. The mountain group of J. ed-Drūz, particularly rich in these remains, is the special reserve of the Druse people. Within its fastnesses this hardy race has defended itself with some success against Ottoman oppression, maintaining religious and, to some extent, political independence.

In northern Jaulān, there are prosperous colonies of Circasians who have increased the productiveness of that region by reclaiming tracts of the basalt-strewn waste. The whole of Jaulān is famed for its rich pasturage and live stock, but agriculture, which is chiefly confined to the southern part, is not progressive.

The stoneless plains of Haurān dry up quickly and consequently pasturage is less abundant there than in the stony hills of Jaulān. Among the natives the two districts are known respectively as Belād el-Qamh 'wheat country' and Belād er-Rabī 'grazing country'.

AREA

The western boundary is marked by the base of Hermon southward to the Hūleh marshes; thence by the Jordan and Sea of Tiberias to the mouth of the Yarmūk gorge which forms the southern limit as far eastward as Wādi Shellāleh. Continuing southward from this latter point the western boundary marches with the district of 'Ajlūn enclaved in the plateau. The eastern boundary is the desert, and includes El-Leja and J. ed-Drūz. On the N. the district is bounded by Wādi Zābirāni and Nahr el-'Awaj separating the Haurān from the Damascus plain. On the S. it runs out upon the unexplored desert and the Beni Hasan country.

The length from N. to S. is about 65 miles; the width E. to W. varies from about 30 miles at the northern end to 90 miles in the latitude of the Yarmūk. The total area is about 4,000 sq. miles.

The whole area was administered under the sanjaq of Haurān except a small part in the north-west which is under the sanjaq of Damascus.¹

PHYSICAL SURVEY OF HAURĀN

The Plain.—The territory known as the plain of the Haurān stretches from the Nahr el-'Awaj southward for about 65 miles until it merges into the unexplored desert east of 'Ajlūn. Its western limit is at first the base of Hermon, then the eastern frontiers of the districts of Jaulān and 'Ajlūn marked by the wadis 'Allān and Shellāleh. On the E. it is bounded by El-Leja and J. ed-Drūz.

It is a vast treeless expanse and, except for the broken

¹ See Chap. VI, p. 240.

hill country north of El-Leja, lies at an average alt. of 2,000 ft. with a gentle fall southward. Its surface, partly flat and partly undulating, is marked by volcanic mounds and basalt outcrops variously disposed, in some parts fairly frequent and in others few and far between. In general the plain is furrowed by widely separated wādis; those on the west towards Jaulān are, however, more frequent and are both deep and steep. Wide stretches of the surface are free of obstruction but much of it is strewn with basalt boulders, in parts so thickly covered as to make cultivation impossible and movement exceedingly difficult. Everywhere the soil is rich and capable of raising fine wheat crops, clearance of the stony tracts only being required to make the whole region cultivable. The prevailing formation is granulous dolerite and a brownish red or blackish green slag, blistered and porous. The dolerite consists of thin slabs of crystal of greyish white labradorite with small grains of olivine and augite. The soil consists of soft decomposed lava. W. el-‘Ajam, which carries the N. Zābirāni and N. el-‘Awaj, marks the boundary between the calcareous formation of the plain to the N. and the basaltic formation of Haurān. At Aufāneh, on the base of Hermon NE. of El-Quneiterah, limestone is seen and to the S. the whole country is basaltic.

The whole plain is dotted with ancient villages built of basalt, the larger ones being usually surrounded by walls and distinguished by numerous towers. Large rock-cut cisterns, vaulted reservoirs and artificial pools, all ancient, are used for storing rain water and afford supplies throughout the year to many settlements otherwise waterless.

Immediately S. of Nahr el-‘Awaj there rises a basalt range, J. el-Māni, running SE. to the arable plain near Bahret el-Hijāneh; its highest summit, alt. 3,640 ft., is in part isolated and resembles a truncated cone. Farther south and lying roughly parallel, there is another low rugged range J. el-Khiyāreh. Between the two ridges is an elevated rocky plateau extending to the Hajj road and having to the S. of it a fertile plain called Ardh el-Khiyāreh. Between J. el-Khiyāreh

and the northern border of El-Leja is a wādi and a rich plain about 4 miles wide ; and there are several springs along the border of El-Leja which send out a small stream to Wādi Luwa. The plain in the vicinity of Ghabāgheb and Dīdi is a region of conical tells.

To the W. of the Hajj road is an isolated lava tract some 5 miles in diameter ; between this latter and Hermon the country is black and uninviting, basalt boulders being strewn over the whole surface. Similar conditions prevail southward through the Jeidūr district, which is separated from Jaulān by W. el-‘Allān and the upper reaches of W. er-Ruqqād.

The district in western Haurān known as Jeidūr is a boulder-strewn volcanic tract : in the north it is hilly, and in the south it is plain. Abundant water and fine pasture have made it famous as a stock-raising district. Where the surface begins to rise towards Hermon, there is the conspicuous elevation Tell el-Hārah, alt. 3,660 ft., visible throughout the Haurān and even from the borders of the desert. It and the neighbouring peaks belong to a class of extinct volcanoes common in this region. Another most prominent feature lying southward of the latter is Tell el-Jābiyeh, alt. 2,320 ft., rising in a well-watered locality from which a canal is carried to Nawa, alt. 1,886 ft., the highest town in western Haurān and the chief place of Jeidūr. A few miles to the south, around Tsil, the country is covered with volcanic mounds the summits of which are fenced with boulders and utilized as sheep-folds by the Bedouin who appropriate the plentiful spring pasturage. Numerous dolmens are scattered about this region.

Eastward from W. el-‘Allān which divides Jaulān from the district of Jeidūr, the surface becomes less and less thickly strewn with boulders finally settling into a stoneless expanse of fine red soil. This part of the plain is thinly populated and a large part of it is uncultivated. Farther E. and S. vast areas are under wheat and many of the cross-country roads are ploughed up, during the sowing season, and do not again come into use until after harvest.

Water is plentiful in western Haurān there being not less

than 14 perennial streams besides many springs. From the Nahr 'Allān the country slopes westward and the streams converge toward Kefr es-Sāmīr and form affluents of the Yarmūk. To the S. of Wādi el-Ehreir, the streams flow separately into Wādi Tell esh-Shehālleh or W. Zeizūn. As a rule the wādis are deep and abrupt, and the streams and springs are bordered with willows, oleanders, and cane.

The section named En-Nuqrah lying south of El-Leja, is the most extensively cultivated part of the whole plain. It falls gradually westward from the base of J. ed-Drūz. All the villages have several reservoirs which are filled either by winter torrents or by surface rain-water drainage. Many villages stand upon or near low tells which are the only objects to break the monotony. The surface is, generally speaking, fairly free of stones, but in parts, particularly in close proximity to El-Leja, it becomes very stony. Basalt crops up often as high as 20 ft. above the general surface sometimes covering areas 40-50 yds. in diameter; these with the huge intervening boulders and scattered fragments give the country a barren and savage aspect. The Nuqrah is furrowed by a series of mostly shallow wādis running westward from the slopes of J. ed-Drūz. The most southern of these, W. ez-Zeidi, however, cuts deeply across the plain from Bosrah and carries a certain amount of perennial water which is mostly used up for irrigation, see p. 572. Almost all the others are dry in summer. The southern part of the plain, including the section beyond the termination of the foothills of J. ed-Drūz, stretches in wide and low undulations over a fertile country which however becomes desolate a few miles south of Bosrah. It is dotted with ruins and other marks of ancient cultivation, but there is no perennial water. Immediately south of Bosrah there is some of the richest land in Haurān.

Generally, the plain is not well watered and crops depend almost entirely upon rainfall. The most extensive grain cultivation is in those sections where perennial water is most scarce. Winter rains are to some extent stored and utilized

by providing artificial catchments for torrents and surface drainage, but the great possibilities of this system have not been exploited.

El-Leja, 'the refuge', lies NE. of the plain and, seen at a distance, from the W. it looks like a low blue plateau. It is a 'lava sea' about 350 miles in area, roughly oval in shape with its greater axis lying N. and S.; its clearly marked edges rise abruptly from the plain to a height of 20 to 30 ft. The 'sea' sends out a multitude of sharp and rugged promontories and everywhere on the plain below there are thick scatters of basalt boulders, masses of fallen rock, and elevated outcrops. The eastern side is marked by W. Luwa, while the greater part of the southern side is bordered by W. el-Qanawāt; both wādis are dry in summer.

In general, El-Leja is a barren tract spread around extinct craters, which has been riven into deep chasms, conical peaks, and confused masses of rock. Several of these peaks rise to a considerable height the most prominent being Tell el-Amāra, alt. 2,825 ft. The eastern and central portions have a more uniform surface than the western, while the outer portions are less rocky than the interior. In the vicinity of Dāmet el-'Āliyeh it is a labyrinth of deep and inaccessible crevasses and overhanging cliffs. A considerable number of trees, chiefly dwarf oak and terebinth, subsist among the rocks of the interior but very few are to be found elsewhere. Areas of fertile soil occur in the depressions which in the winter retain the water, and in spring and early summer produce pasture and grain crops. Authorities differ as to the existence of perennial water, but it seems clear that some springs do exist. At Qirāta, Merrill reports that 'there is a large fountain of excellent water which is full of fish.' There is also a spring of excellent water west of Mesmīyeh, and several springs along the northern border between Sha'reh and Mesmīyeh which send out a small stream to W. Luwa. The numerous cisterns and open reservoirs of antiquity are still used for rain-water storage; during dry summers the inhabitants are often forced out into the plain in search of water.

The passes, fissures, and caverns in this black and desolate region are so inaccessible that the Bedouin robbers by which El-Leja has been infested for centuries, continue to find secure refuge from the law ; in this only do they have common cause with their Druse neighbours who have settled there in considerable numbers. There are also several Christian villages on the borders, the most important being Khabb with a population of 1,200. At only a few points are the rocky borders penetrable and, there, the tracks are hewn out of the rock. The secrets of internal communication are carefully guarded by the inhabitants. Tracks over and around deep fissures or through narrow passes and confused masses of fallen or upheaved rocks, can only be followed in daylight with the help of local guides whose knowledge is confined to particular localities. Numerous ruins of ancient cities and villages are dotted about, many of which are still in wonderfully good preservation and only a few are partially occupied. In character they resemble the other ancient ruins of Haurān, see p. 557. The borders of El-Leja have a soil strongly impregnated with saline from which saltpetre is extracted. The millstones quarried in El-Leja chiefly at Khabb and 'Ezra are noted throughout Syria. A Roman road running N. and S. through the heart of El-Leja is known to have existed.

Jebel ed-Drūz or Ardḥ el-Bathanīyeh, sometimes named *J. Haurān*. It is a prominent and lofty mountain group, mostly volcanic, rising from the plain to the south-east of El-Leja, and disposed in several ridges interspersed with many isolated higher hills some of which are extinct craters. The summit of the main ridge is a plateau on which rise the highest peaks. Seen from the west, the loftiest peaks of the ridge are Tell Abu-Tumeis, alt. 5,090 ft., and Tell Abu-Quleib, alt. 5,780 ft., which rise from the northern and southern ends respectively. The ridge maintains an almost uniform altitude between these two peaks and the northern and southern slopes of the mountain fall from their outer bases ; south of Quleib a lower ridge projects southward. To the E. there is another series of

broken heights among which is Tell el-Jeineh, alt. 6,080 ft., the highest peak of the mountain; it is obscured from the W. by the most prominent peak, Tell el-Quleib, which has an extinct crater on its southern side.

Between El-Leja and the northern base there is an arable plain some 3 miles wide. The northern slopes of the mountain are easy, the soil is rich, and the surface is diversified only by little naked conical tells. Several lofty isolated peaks also occur, among which are Tell esh-Shihān, Tell Shuhbeh, and Tell ez-Zūb standing about $1\frac{1}{2}$ mile apart. Tell Shuhbeh is one of the projecting summits of Tell Abu Tumeis and the ruins of Shuhbeh lie between the two heights. From the northern slopes of Tell esh-Shaqqārah, alt. 5,390 ft., with a crater, there rises W. Luwa which, under various names, falls westward, then northward along the base of El-Leja to the marsh Matkh Burāq. It falls rapidly and the bed of the winter torrent is lined with oleanders and other shrubs.

The western slopes of J. ed-Drūz are steep and are intersected by numerous wādis which resemble each other so much when they reach the plain that it is difficult to ascertain with accuracy the course of each one. Two wādis descend from the neighbourhood of Qanawāt. One of these, from the ravine at Deir es-Sumeid, sweeps to the north after leaving the mountain and follows the base of El-Leja under the name of W. Qanawāt, finally breaking south-westward to W. el-Ehreir. The other takes a parallel course and joins the other wādi farther to the south. Both wādis are dry in summer. Close N. of Suweida is the wādi of that name, where several others meet near where it is crossed by a well-built bridge; there are several mills near by. The region S. of Qanawāt to El-Kufr is abundantly supplied with springs, and the Druses sell the water at high prices to the Moslem villagers in the plain.

On the southern extremity of the range there is an almost isolated hill on which stands Salkhad, alt. 4,280 ft. Northward of this, the ridge is broad with gently sloping sides and gradually increases in elevation to the base of Tell el-Quleib, and at intervals there are several high conical peaks. Down

the middle, from the base of Quleib, there runs a shallow wādi $1\frac{1}{2}$ to 2 miles wide and, on the extremity of the eastern ridge thus formed, stands the castle of Salkhad. Here the flanks and summits show signs of ancient cultivation in the numerous fenced fields which can be everywhere traced. The gentle slopes were at one time thickly planted with vines and the steep declivities still retain their ancient terraces. In the thirteenth century the vineyards of Salkhad and the gardens of Bosrah were famous.

The foothills to S. and SW. roll with gradually diminishing abruptness to settle into a gently undulating surface. Here and there conical tells and craters rise conspicuously and nowhere is there any considerable area of level plain. The courses of numerous wādis, almost all of which are dry in summer, find their way tortuously from the higher slopes. From the south-western base of the mountain commences W. ez-Zeidi which cuts westward through the plain. The upper waters of this wādi rise SE. of Zāleh at a spring Ras el-Bedr and flow westward in a wādi of that name, carrying perennial water as far as Bosrah.

On the eastern flank of J. ed-Drūz near Zāleh, there is a copious spring which makes that place much frequented by Arabs; the stream loses itself in the plain eastward. The eastern base falls to a fine arable tract dotted with tells and ruined cities and desolate villages; there are no springs, but water can be found at 3 to 4 ft. under the surface. This arable belt stretches a short distance towards the Syrian desert. There are many excellent pastures on the eastern slopes, which support large flocks chiefly of goats. On these slopes and at the foot of the mountain there are upwards of 200 villages, mostly deserted, situated at distances of $1\frac{1}{2}$ to 2 miles apart.

The central and southern sections of the range possess features of great beauty: graceful wooded slopes, wild glens, bold precipices, and picturesque vales are seen on every hand. The whole of the loftier portion is clothed with forests of ever-green oaks. The northern and eastern slopes are destitute of trees. Alongside of naked tells and extensive outcrops

of basalt, there are large areas of extremely fertile soil which produce excellent wheat. The cultivable area could be largely increased by clearing away the dense scatters of boulders which encumber the ground: in fact practically the whole mountain is capable of cultivation.

Like the rest of the Haurān, J. ed-Drūz was, in antiquity, thickly populated; remains of extensive fortified cities and villages still exist in great numbers and in wonderfully good preservation. A great many of these are now partially occupied by the Druses who chose the mountain as their chief refuge after 1860 and who, to-day, are comparatively prosperous. Porter in 1855 counted over 100 sites on the mountain only a very few of which were at that time partially occupied. Buildings are entirely of basalt, the walls being 5-8 ft. thick. Roofs and ceilings are of huge basalt slabs; doors and windows are also of the same material hung on pivot hinges. At Kufr there are city gates of basalt 9 ft. high and 1 ft. thick. Some cities have from 200 to 500 houses still perfect, and there are numerous massive square sepulchral towers besides remains of temples and public buildings. The 'lay out' follows the usual Roman plan of paved streets between the city gates, traversing the main axes of rectangular sites. Paved roads, many remains of which still exist, connected these cities. Standing on plain, slope, and summit, the empty ruins, moss-grown and covered with luxuriant creepers, rise amongst dense foliage as lasting testimony to a past civilization. Perennial water, in general, is scarce, although certain parts are well watered. Supplies in ancient times were mostly stored in cisterns and reservoirs or conveyed by aqueducts parts of whose arches still span the intervening valleys. The present population occupy only small parts of these cities a large number of which are situated at levels of over 4,000 ft. where snow falls regularly in January and February.

Porter in 1855, discussing the failure of the Turks to enforce conscription on the Druses, writes: 'A great part of the (Jebel) Haurān is impracticable for cavalry and artillery

while it affords every facility to skirmishers and precludes the possibility of acting with large bodies of the line. During winter, troops cannot live in it without good barracks, and during summer they are enervated by heat and scarcity of water. To subdue and retain Haurān it will be necessary to establish several strong and active garrisons in well-appointed fortresses and then to construct military roads through the wildest districts; were this done, the country would soon become the granary and garden of Syria.' He also discusses the attitude of the Druses towards conscription: apart from an inherent objection to any form of restraint imposed by the Turks, they plead the impossibility of providing men for Imperial purposes, while at the same time protecting their homes from the Bedouin hordes against whom they wage constant warfare.

Captain Murphay, *Service Gazette*, 1911, writes: 'In the expedition against the Druses in 1910, the Turks concentrated at Der'a a force of 21,000 men of all arms. The Druses concentrated only about 2,000 men and were defeated after a weak defence, the chief feature of which was a partially successful raid on the line of communications at Der'a, fighting having been on a line El-Kufr—Qanawāt—Shuhbah. The Turks are reported to have left an army of occupation of 4,000 mounted men with head-quarters at Bosrah; they also "announced their intention of rebuilding the barracks at Suweida and repairing the roads in Haurān which are extremely bad"'. .

PHYSICAL SURVEY OF JAULĀN

This district forms part of a great plateau which is known as Haurān in the broadest sense of that word. Lying over against the northern section of the Jordan valley, El-Ghōr, it covers an area of about 560 sq. miles. The boundaries are clearly defined by the slopes of Hermon on the N.; the Jordan and Lake of Galilee on the W.; Nahr el-'Allān with the upper reaches of Nahr er-Ruqqād on the E.; and the gorge of Yarmūk on the S.

The whole of the Jaulān is an immense volcanic field consisting of irregular heaps of amorphous lava and disintegrated scoriae with mounds of globular basalt. The slopes of the Ghōr are covered with rugged blocks of lava which decompose and roll into the valley. The northern part reaches an alt. of 3,625 ft. independently of the chain of volcanic peaks, called J. Heish by early writers but now unknown by that name. These peaks, rising to heights of over 4,200 ft., lie in a general direction S. by E. from Tell el-Ahmar on the north to Tell el-Faras on the south, and cover an area of about 20 miles by 2 miles. The general elevation of the plateau decreases steadily southward to its lowest point overlooking the Yarmūk where the alt. is 974 ft. The surface rises quickly toward the NE. in a series of terrace-like ascents (as a consequence of the lava streams), from an average level of 1,640 ft. up to 3,000 ft. at the watershed between Tell Abu 'n-Nada and Tell Hāmi Qurseh. The western face of the plateau falls abruptly to the Ghōr at a level of 682 ft. below the Mediterranean, so that the total fall from the watershed is 3,682 ft. From this watershed, the sides of which produce many small watercourses, several very deep and narrow wādis fall towards the NE. shore of L. Tiberias; as they descend to the lower levels they take courses almost parallel to the Jordan. In winter they flood the marshy and fever-stricken plain, El-Batīhah, but in summer they are more or less dried up. Apart from W. es-Semak, all the wādis of consequence form part of the great basin of the N. Yarmūk which drains the greater part of Haurān and Jaulān, see p. 570 f. These wādis are invariably deep and steep and the limestone strata of their lower sections show the great depth of the overlying lava flow. The Yarmūk in fact roughly marks the southern boundary of the basaltic country which in the neighbouring district of 'Ajlūn gives way to limestone.

W. es-Semak drains the northern slopes of the plateau known as Ez-Zāwīyeh el-Gharbīyeh, and debouches near the middle of the eastern shore of L. Tiberias; next to the Yarmūk it is one of the most important physical features of Jaulān.

Schumacher, 'The Jaulān', 1889, writes of this wādi: 'It is of priceless significance for a plan of railway and carriage roads. No other valley of the upper Jordan land is suitable for this in an equal degree, for all the others are either narrow or have a too precipitous crossing up the plateau.' The wādi with a width of $1\frac{1}{2}$ to 2 miles, runs up from the shore for about 4 miles before it divides into two arms. The upper slopes of the main wādi, which has a gradual fall, are basaltic and only quite the lowest strata are of chalk. A small stream cuts through the bed of soft chalk. The upper branch wādis are precipitous and rocky. On the southern slopes of the main wādi there is water in abundance and the soil is very productive; bramble and other scrub and a few oaks are found here and there, and many ancient ruins bear testimony to the past prosperity of this locality.

Jaulān is divided into three districts: the northern and most extensive is known as Esh-Sha'reh; the other two on the S. lying to right and left of the Nahr er-Ruqqād are named Ez-Zāwiyeh el-Gharbiyeh and Ez-Zāwiyeh esh-Sharqiyyeh respectively. The first mentioned and the upper part of the second are altogether rough and wild, covered with masses of lava poured from countless craters. The surface is so burdened with boulders that it is of little use agriculturally but it bears good pasture, grass growing so luxuriantly in spring that tracks and boulders are completely obliterated. The region, moreover, possesses numerous perennial springs around which there are always green fringes. In summer the aspect is dismal and monotonous, but vegetation, protected by the boulders from the sun's rays, is never entirely burnt up. Movement is almost impossible except by daylight on the winding and difficult tracks which seek a way through the boulders, or by the narrow wagon tracks which run between all Circassian villages. Quneiterah, alt. 3,300 ft., a flourishing Circassian town and the chief place of Jaulān, lies to the N. on the spur or backbone of Sha'reh on which are high volcanic peaks. In this neighbourhood considerable areas of ground have been cleared for cultivation; indeed this applies to all

localities occupied by Circassians, but the labour required is too great for extensive agriculture.

The southern section including the lower part of Ez-Zāwiyeh el-Gharbiyeh and all Ez-Zāwiyeh esh-Sharqīyeh is free of stones; extinct craters become less plentiful and in general the country is smoother and much more cultivated; the soil is rich and brown similar to that throughout the Haurān, and is capable of producing similar crops.

The extensive oak forests which at one time covered a great part of the Jaulān plateau have now disappeared and only small woods and isolated groups of trees remain.

Nahr Yarmūk.—Although this name is often given to the whole wādi, it belongs more strictly to the northern tributary, W. el-Ehreir (or 'Irāq), the name Sherī'et el-Menādhireh more correctly describing the stream for the 25 miles or so between the mouth of W. el-Ehreir and the Jordan (crowfly, 19 m.). The three chief branches of the wide Yarmūk drainage-basin come in close together, W. el-Ehreir from NNE., W. Zeizūn from E., and W. Shellāleh from S; the confluence is commanded by the hill Tell el-Jamīd, with remains of massive basalt walling on its oblong top, rising some 200 ft. immediately west of Maqārim station on the l. bank of the Sherī'eh: the area at the top is about 415 yds. by a maximum of 250 yds. at the NE. end. The Yarmūk system extends E. to W. between 60 and 70 miles as the crow flies, its upper branches having a like range from N. to S. With such a catchment-basin, the Sherī'eh is especially liable to sudden floods, caused by rains at a distance. Thus in May 1913, after unusual storms in the western Hamād south of Haurān, the track crossing the bridge at Maqārim at a height of 10 ft. above the stream, which at this point is normally some 70 yds. wide at this season, was submerged in a few hours, and all the lower ground flooded. At its head the Sherī'eh is 180 ft. above Mediterranean level, while at its confluence with Jordan it is 835 ft. below, so that the total fall in about 25 miles is a round thousand feet. The water flows at great speed down the narrow valley, sometimes hardly leaving space for a track

to pass under the basaltic precipices on either side. Where, however, the banks are less abrupt, especially when the valley widens, as at the mouth of W. ez-Zeyyātīn, and near Kuweyyeh, 4-5 miles lower, there is room for cultivation; here the Menādhireh Arabs grow barley and wheat on the slopes, and have gardens of lemons, pomegranates, vines, and olives. Other favourable spots farther down stream are cultivated by the fellahin from El-Kefarāt on the S. side of the river. There are water-mills at the junction of W. Ku'eilbeh about 3 miles from the head, and near the hot springs of El-Hammeh about 3 miles from the outlet into the Jordan valley; on the northern bank there is little wood, but oaks and terebinths are found on the 'Ajlūn slopes. The Sheri'eh is fordable without danger at its head, at several places in the neighbourhood of Kuweyyeh, half way down to W. er-Ruqqād, and again at the junction of that wādi. A strong position at El-Ehsūn (El-Husūn, El-Quseir) on the S. bank, east of the mouth of Wādi el-Ghazāleh, may be mentioned. Here is a plateau, with ruins, on the summit of an isolated hill over 1,000 ft. above the valley, and precipitous on all sides but the S., where it is connected by a narrow neck with the mountain ridge bordering W. Samar. The following are the chief tributaries of Sheri'et el-Menādhireh: W. el-Ehreir rises near Sanamein in the northern Haurān. It runs at first almost S., then gradually bears SSW., leaving the town of Sheikh Miskīn on its l. bank. It has perennial water only in its lower course, where it receives several affluents from the N., the last, before its confluence with the Sheri'eh being the long Nahr el-'Allān. This affluent, which carries a permanent stream from Jisr el-'Allān, 9 or 10 miles up its course, rises at 'Ayūn es-Sakhr, near the foot of Tell el-Hārah. Below the bridge, it is fed by springs and increases in volume, forming a first cataract $\frac{1}{2}$ mile N. of Beit 'Akkār and not far below, a second with a greater fall (about 60 ft.) into a pool which is rich in fish. Running through a gorge, and here called W. Beit 'Akkār, it falls in a third cataract. Five miles S. of the bridge, it receives W. el-Jebeleh on the left bank, the sides being here

thickly covered with oleanders and cane-brakes : the gorge now widens to about 500 yds., the banks are less steep, and the stream receives much water from lateral springs and brooks.

Wādi Zeidi ('*Aweiret Zeizūn*) rises in J. ed-Drūz, north of Salkhad, and passing the Nuqrah of the Haurān, touches Der'a, some distance below which it is known as W. el-Meddān; in this section it is joined on the right bank by W. ed-Dahab from J. ed-Drūz, a long watercourse with shallow bed and no perennial stream, falling about 2,700 ft. in its length of over 40 miles. Beyond Tell esh-Shehāb (SW. of Muzeirib) it is joined on the same side by W. el-Bajjeh flowing from the Bajjeh lake. It is now for a time called Wādi Tell esh-Shehāb, until it receives, also on the right bank, Moyet Zeizūn, the name of which it takes until its confluence with Sherī'et el-Menādhireh. It has two large southern tributaries : W. el-Butm, with its affluent W. el-'Aqib, rising on the spurs of J. Haurān, runs for about 45 miles in a broad rocky bed with shallow banks, and comes in about 12 miles above Der'a; W. Shōmar, said to rise on the W. foot of J. ez-Zumleh near the Hajj road, runs for a long distance parallel with W. esh-Shellāleh, cuts through the plain of Nakū' near Remteh and deepens its bed to more than 30 ft. near its mouth, about 1 mile W. of Tell esh-Shehāb: both are 'winter wādis', without perennial streams. Throughout its upper course, where it traverses the lava, W. Zeidi does not cut deep into the plain. At Umm el-Meyādīn, where it enters the limestone formation, it abrades the foot-hills of J. ez-Zumleh, forming steep banks on the S. side; only near Tell esh-Shehāb does it cut itself a deep bed. It has no perennial brook, but there are springs about Bosrah, and again at Der'a, where there are six, two, 'Ain el-Mesāri and 'Ain et-Tawīleh, yielding good drinking water, the others brackish.

Wādi esh-Shellāleh, in its middle and lower course the boundary between 'Ajlūn and the Haurān, rises far to S., its upper branches descending from the water-shed of Jebel 'Ajlūn west of Sūf, and from a point north of Jerash; until it reaches

the neighbourhood of Remteh, it is known as W. Warrān. After leaving the 'Ajlūn hills, its valley is shallow and earthy as far as the Husn—Remteh road, and down this part of its valley the Circassians of Jerash drive their carts (see p. 607). But where it is crossed by the Irbid road, its channel is 70 or 80 ft. below the level of the surrounding country; about 5 miles farther down, at Mughāyir, it has sunk to 170–200 ft.; while about 3 miles lower, at Shejeret esh-Shabūl, the stream runs between banks over 400 ft. high, beyond this point falling in cataracts. At Daneibeh, 2 miles from the mouth, the sides rise to about 1,000 ft., the gorge being rather more than $\frac{1}{2}$ mile broad, and in winter impassable through the rapid growth of torrents in the multitudinous ravines. In its upper course the wādi usually carries no great volume of water after winter and spring, and is dry by May or June; but after the great storm in May 1913 it was the principal channel by which the flood waters were brought down (see above, p. 570). The chief affluents of W. esh-Shellāleh join it from the west. On its upper course, the largest is W. ed-Dahabīb, rising under J. 'Ajlūn, without perennial water. W. er-Rāhūb rises a little E. of Beit er-Ras, receives a brook after $4\frac{1}{2}$ miles near Rāhūb, where there are gardens and mills, and comes in west of Turrah. Wādi 'Ain el-Khureibeh, with a broad, well-cultivated valley rising near the ruins of Khureibeh, has permanent water from the spring of the same name about half-way down its course. Lower down, it is called W. 'Ain el-Ghazāleh from another spring; it now falls in a cataract 100 ft. high, and after supplying seven mills, descends between high banks to its confluence opposite Daneibeh which stands high on the rocky E. bank of Wādi Shellāleh, and is approached by a winding track.

The following southern tributaries join the left bank of the Sherī'eh from the high ground of El-Kefarāt, the northern district of the Belqa embraced by the river bend:

Wādi el-Ku'eilbeh, rising east of 'Ain Turāb, 9 miles to the S., has a permanent brook from Tell Ābil, about 2 miles down in which distance it falls 1,600–1,700 ft. Its slopes are partly

wooded on its lower course, and it enters the Sherī'eh 3-4 miles below the mouth of W. el-Ehreir.

Wādi el-'Aqrabeh rises on the Kefarāt watershed opposite 'Ain et-Turāb. It follows a NW. and W. course of about 10 miles, making numerous bends, and falling some 2,000 ft. From Kefr Sōm, about 2 miles from its head, a brook runs in its bed for rather more than a mile. From Rafīd it forms a wild gorge with precipitous cliff sides: in this part of its course it is known first as W. 'Ulleiqeh then as W. Qaleit. The lower course is perennial from Kefr Lahiyeh, 3-4 miles above its mouth. The bed of this wādi is rocky and full of caves; above Sahem, the gorge is said to be 1,000 ft. deep. W. Sha'ib, its chief affluent, rises E. of Samar, and comes in S. of Sahem after a course of 4-5 miles, only the lower part of which has perennial water. There is wooded country about its upper valley and cultivation on its slopes; in the bottom lands there are tobacco plantations and olive groves. A track runs down its bed.

Wādi Samar, rising as W. 'Ain et-Turāb by the spring of that name, flows NW. for 11 miles, known successively by the local names of W. el Masabb, W. el-Hamra, Nahr Shaqq el-Bāred and W. 'Ain el-Ghazāleh, under which latter name it enters the Sherī'eh near 'Arāq el-Heitaliyeh. It carries a perennial brook throughout; the banks and valley slopes are steep, but not craggy, and are partly cultivated, partly overgrown with terebinths and storax trees.

On the right (N.) bank, the Sherī'eh receives *W. ez-Zeyyātīn*, with a perennial stream, $5\frac{1}{2}$ miles below the junction of W. Ehreir. But the chief tributary on this side is the *Nahr er-Ruqqād*, which rises at the foot of Mt. Hermon, but for a long distance is an unimportant watercourse. It has a perennial stream from Jisr er-Ruqqād, 3-4 miles NW. of Jisr el-'Allān, where the road from Bāb et-Tumm to Nawa and Damascus crosses. But shortly below the bridge it falls over a perpendicular cliff about 80 ft. high, and thence continues in cascades over basaltic rocks in a deep narrow gorge 30-100 yds. wide until it is joined on the left bank by the

Zeizūn brook. The stream is here 6-7 yds. broad in late summer, but perhaps nearly twenty times the breadth when the snows melt on Hermon: in its whole course the N. er-Ruqqād falls more than 2,000 ft. Opposite the mouth of W. 'Ain el-Ghazāleh, the Sherī'eh is joined by the short, but perennial, W. Mas'ūd.

CLIMATE AND HYGIENE

The conformation of the region comprising Haurān and Jaulān presents differences of elevation and aspect which result in very considerable climatic variation apart altogether from the influence of the western mountain chains and the eastern desert. The bare and open plain of Haurān lies at an average alt. of 2,000 ft., some 3,000 ft. lower than the main ridge of J. ed-Drūz whose several aspects with their frequently wooded spurs and valleys add other elements of climatic importance. Jaulān again falls from about 3,600 ft. in north to about 1,000 ft. in south, while its western slopes and valleys sink to the Ghōr, 682 ft. below sea-level, and are affected by the climatic conditions of that great rift (see p. 657 f.).

The following notes are applicable to Haurān in general, and to part of Jaulān in particular, but there is no available information as to the many local variations.

The climate of the Haurān plain is considered to be extremely healthy. During spring and summer it is, in certain areas, subject to morning mists, the moisture from which is of much value; during the heat of the day, it is swept by fresh breezes, and nights are cool. In winter the winds are cold and biting. During July and August, the hottest months of the year, the maximum temperature is about 104° Fahr., and in January, the coldest month, frosts are common.

On the Jaulān plateau somewhat similar characteristics prevail; during the greater part of the day there are fresh winds and, especially in the north, very heavy dews fall which keep the mornings pleasantly cool. Immediately after sunset the temperature quickly falls. The influence of the Ghōr is only

perceptible on the slopes and lower parts of the valley. It is only on the marshy Batihah on the north shore of L. Tiberias, in the Hūleh marshes, and in the upper parts of the Yarmūk gorge that malignant fevers are prevalent.

In August and September 1884, the temperature on the high plateau of southern Jaulān at 5.30 a.m. averaged 59° Fahr. and it rose during the day to an average of 77° and maximum of 88° Fahr. On May 26 and 27 slight rain fell. In northern Jaulān during September the temperature on the plain at 5.30 a.m. averaged 56° and rose to 74° during the day. In general it is hotter in June and July than in August and September. Dew falls abundantly throughout the whole summer. Except in very mild years, snow falls in the region of Fiq, Dabbūseh, Kefr Hārib, &c., but it lies only for a few hours. In north Jaulān, however, in the neighbourhood of Quneiterah and Jōret el-Hawa, snow lies to the depth of several feet for weeks, and compels the Bedouin to seek the sheltered wādis. In general the limit down to which snow regularly falls and remains, is the line Quneiterah—Jormiyeh to the southern bridge over the Ruqqād and then over the 'Allān. North of this line intense cold prevails during certain parts of the winter. With a strong east wind, southern and central Jaulān were found to be bitterly cold in December 1884, whereas from 1st to 4th January 1883 it was mild and agreeably fresh.

Tell Abu'n-Nada 'hill of the father of dew', one of the northern chain of peaks, is a great dew and rain distributing centre. A thick fog rises from its crater and envelopes Quneiterah and its neighbourhood in a deep fertilizing mantle which disappears with the rising sun. The country from Quneiterah westward to Mansūrah is named Jōret el-Hawa 'lowland of the wind' and during winter this gap is swept by a cutting north-west wind which brings with it a heavy snowfall; it is the most windy tract in northern Jaulān.

In J. ed-Drūz the climate of the higher altitudes is healthy, and the heat of summer is tempered by cool breezes. In

winter severe cold is experienced, frost and snow being common, the latter sometimes lying to a considerable depth for weeks. In the valleys and lower altitudes, the summer is hot and enervating.

INDUSTRIES AND TRADE

Agriculture.—The soil of Haurān is extremely fertile throughout and produces the finest wheat in Syria. Those areas which are stoneless and easily tilled are usually chosen for cultivation, and practically no effort has been made to reclaim the boulder strewn but fertile tracts which only produce spring pasture for Bedouin flocks. For the most part, the crops are dependent upon rainfall and there are only minor areas where perennial water is available for irrigation or where rain water catchments have been adapted to that purpose. In such irrigated portions, the season's crops are frequently repeated but, in general, there is only one crop per season.

Western Haurān and northern Jaulān are, on the whole, fairly well watered; the ground, which here is stony, is almost entirely uncultivated, but produces spring pasture so luxuriantly as to hide the boulders and even the ancient ruins scattered everywhere. In the Nuqrah where the finest wheat crops are raised, there is extensive cultivation and northward along the course of the railway lines to Damascus the soil is also widely cultivated. Elsewhere, however, the plain is tilled only around the widely scattered villages, the remainder being left to the Bedouin. The fellah in these parts usually confines his energy to an area which can be worked by one pair of oxen, known as a *feddān* (see p. 324) and moves no further from his village than he can help. Agriculture here, as elsewhere in Syria, has been very seriously affected by the unscrupulous operations of rich merchants who practise a system of usury to which the fellahin have fallen victims. Since railways were built there has been a very great increase in the land brought under cultivation; many of the villages which

previously were deserted have been reoccupied and the population of many others has been nearly doubled. Difficulties of transport previously crippled the industry, and in years of heavy crops much grain was allowed to go to waste.

The Circassians of northern Jaulān having their centre at Quneiterah, show greater enterprise than the fellahin, and have reclaimed considerable areas of that stony district. They have also established wagon tracks for communication over Jaulān and 'Ajlūn. This part of Jaulān, however, remains in the main what it has always been, a grazing country. The hay stacks seen in every Circassian village are a feature of the locality. The southern part of Jaulān is stoneless and adaptable to cultivation, the soil being of the same rich quality as that of the Haurān plain.

In J. ed-Drūz there are fine valleys of rich lava soil on which cereals of a high quality are raised. Throughout the mountain, especially on the southern slopes, numerous stone fenced fields, now largely fallow, bear testimony to the former agricultural value of the country. On these slopes vines were at one time extensively cultivated. The mountain is well watered in some parts, but in general, perennial water is scarce. The eastern slopes and the plain at the base bear fine pasture much frequented by the Bedouin.

The comparatively small areas of El-Leja which are under cultivation, produce small quantities of wheat and barley and some pasture. To the east of El-Leja there are partly cultivated arable tracts, but most of the land is under pasture.

The chief crops of Haurān are wheat, barley, maize and dhura, the quality of the first-mentioned being famed throughout Syria and even in Europe, to which a large quantity is exported. The agricultural possibilities of the region are great and, under an enlightened government, the industry could be greatly extended.

The administrative area of the sanjaq of Haurān as given by Cuinet is considerably greater than the area of Haurān and Jaulān as here assumed, but the annual yield of the sanjaq from agriculture is probably only a little greater.

The following table from Cuinet's estimates gives the approximate average annual crop values for the sanjaq :

Wheat	£1,149,000
Barley	680,000
Maize and dhura	646,000
Aniseed and sesame	262,000
Water melons and fruit	260,000
Raisins	180,000
Vegetables	80,000
Silk	40,000
Various beans and peas	28,000
Lucerne	20,000
Tobacco	5,700
Hemp, sumach and cotton	9,300
Olives and olive oil, honey and wax, wool and various products	12,600
Total	3,372,600

Live Stock

The amount of live stock raised in the whole sanjaq is probably considerably greater than that raised in the area treated above.

Cuinet gives the following figures for the sanjaq :

Cattle	1,400,000
Buffaloes	50,000
Horses	2,100
Donkeys	10,000
Mules	8,000
Camels	2,100
Sheep and goats	1,050,000
Total	2,522,200

INHABITANTS

The inhabitants of the Haurān sanjaq are all either agriculturists or stock raisers.

The following are Cuinet's estimate in round numbers :

Moslems	40,000
Christians	41,000
Druses	55,000
Total	136,000

This estimate probably includes the sedentary Bedouin but does not appear to include nomads, of whom there are large numbers.

CHAPTER XVIII

‘AJLŪN AND NORTHERN BELQA

AREA

‘AJLŪN is bounded on the N. by the Nahr Yarmūk, on the S. by the Nahr ez-Zerqa, on the W. by the Jordan Valley, and on the E. by the Haurān and the Hamād. It is divided into a number of districts largely determined by the physical configuration of the country. On the west side of the main watershed, from south to north, the following tracts succeed each other. El-Me‘rād and J. ‘Ajlūn are both wooded, rising to the culminating point of the whole region NW. of Sūf, and extending north to W. el-Yābis. El-Kūrah, between that wādi and W. et-Tayyibeh, is at first similar in character, but at its northern edge there begins a series of narrow interfluvial plateaux, continued in the next district of El-Wustīyeh to end in rolling country sloping to W. el-‘Arāb. The succeeding district, Es-Sīru, is little more than a high ridge forming part of the watershed between W. el-‘Arāb and Sherī‘et el-Menādhireh. Farthest to the north is El-Kefarāt, a wooded tract in the bend of the Sherī‘ah. On the east side of the watershed lie the following districts. The first on the south is Beni Hasan, called after the tribe of that name, including the tract known as Es-Suweit. It runs N. about as far as J. ‘Ajlūn, but also has an easterly slope towards the Hamād, into which the district merges through decreasing hills and ridges, chiefly bare, but with single trees (terebinths) scattered here and there. Beni ‘Obeid, to the north, also named from an Arab tribe, continues the long gradual slope down towards Yarmūk; moderate hills pass into flatter country of an open character. On the W. this district marches with El-Kūrah, on the E., its border is, roughly, a line running NW. from the region of the

Khaneizīr in Beni Hasan to W. esh-Shellāleh, which is regarded as the frontier of the Haurān. North of Beni 'Obeid, is Beni Juhma, marching on the W. with El-Wustīyeh and Es-Sīru. This is a district sloping east and north to W. esh-Shellāleh, and west to W. el-Ghafr. It consists for the most part of open country; the soil of the plain, El-Biqā', on its eastern side almost equals that of the Haurān in fertility.

PHYSICAL FEATURES

'Ajlūn, beginning on the N. bank of the Nahr ez-Zerqa, is a region more deeply furrowed by wādīs and more thickly wooded than the Belqa. Its southern slope, immediately above the r. bank, rises in its western half to a maximum of some 3,000 ft. in 3-4 miles. The best approach from the Belqa is farther E., where the comparatively long valley of W. Jerash offers easy gradients; on this valley the roads from Salt and 'Ammān converge.

Relief

The main watershed of the country, beginning W. above the Ghōr NE. of Tell Deir 'Alla, runs at first E., rising steadily from Muntār 'Omeri (1,007 ft.) to Nijdi (3,542 ft.) and Qal'at Elyās, N. of the village of Birma, which is approximately the same height. Here it bends N., still increasing in height, till it attains its maximum with El-Menārah (4,040 ft.), $4\frac{1}{2}$ m. NW. of Jerash, at an altitude very nearly corresponding with that of J. Ōsha'. It now begins to decrease, gradually falling over the 17 miles north to Irbid. In five miles Ras el-Imnīf shows a loss of only 150 ft., Rās Harāqla beyond it, of 300 ft. At the cross-roads near Qasr Rākṣa some 13 miles away, the loss is still only 600 ft.; but from here the fall to Irbid is 700 ft. in five miles. From Irbid the crest continues N. with little change of height for a further five miles, then bends W. to Ibdar and Umm Keis, near which place it ends with a steep drop of 1,650 ft. in a few miles to the Ghōr. The main watershed thus encloses within two recurved arms almost all 'Ajlūn, the predominant slope of which is

westward, formed by a succession of parallel ridges and ravines issuing through gorges into the Jordan valley. In the southern half of the district the ridges between the chief watercourses are high, narrow, and covered with trees and rocks, with space for larger villages only along the more open valleys. In the northern half, the ridges broaden to narrow plains, such as those on which Tibneh and Et-Tayyibeh stand, and there are fewer trees. But though fertile, these plains are restricted by deep confining wādis, and scope for cultivation is necessarily reduced. N. of the Ibdar-Umm Keis line there is a short northern slope to the Sheri'et el-Menādhireh (Lower Yarmūk), the fall amounting to between 2,000 and 1,700 ft. in a maximum distance of about 7 miles (crowfly) down the wooded tract of El-Kefarāt (see p. 598 f.), which is crossed by tributaries running north-west.

East of the main watershed there are two principal slopes. One falls approximately south to N. ez-Zerqa, the other north to N. Yarmūk, both from an easterly continuation of J. 'Ajlūn which runs by J. Qafqafa and Tell Abu 'Ayāth (3,427 ft.) towards Rihāb, about 3 m. W. of the Hejaz Railway. On the first, the gradients are not steep except just above the bed of the Zerqa; the Valley of Wādi ed-Deir (Wadi Jerash) affords easy entrance into 'Ajlūn, nor are the gradients difficult in the less frequented Beni Hasan country farther east. The second slope, drained by W. Warrān (Upper W. esh-Shellāleh), the chief southern tributary of Yarmūk, falls about 3,000 ft. in a distance of some twenty-five miles, at first amid undulating hills, then through flatter and more open country.

The Northern Belqa, of which the boundaries have been defined above (p. 557), has two main slopes, one facing SW. to the Jordan Valley from a line curving between Hesbān and J. Ōsha', the other N. from a straighter line running eastward from Ōsha' through Kōm Yājūz to the l. bank of the upper N. ez-Zerqa; these two slopes enclose a triangular upland with its apex to NW., forming the heart of the whole region. There are two subsidiary slopes, one draining S. and SE. from the base of the upland by upper watercourses of the Zerqa

Mā'in and the Wāleh-Mōjib systems, the other directly W. to the Ghōr between the lower slopes of Ōsha' and the mouth of N. ez-Zerqa.

The district as a whole is distinguished from that to the S. of it not only by the greater extent of its broken country but by a progressive increase in the number of its trees. The south-western slope is wooded only along its upper part; lower down, except here and there in perennial wādis, there are few trees; it has been remarked that any one provided with a small-scale map could find the way from the Jordan to Mādeba without a guide. The scenery here has reminded more than one traveller of our own continent rather than of Asia. The oaks and rapid streams of many upper valleys have recalled the hill country of Central Europe; W. Hesbān, with its green sides, abutting rocks and fallen boulders suggested to Tristram a Scottish glen or Cumbrian dale. The northern slope is the more consistently wooded, and is described as park-like over a great part of its extent; but it appears to have no forest. Here also travellers are reminded of European scenery; the hills and hollows are dotted with trees, single or in groups, with intervening glades cultivated for barley, or left under grass. The slope is commanded from the S. by several high points, of which the best known and most accessible is J. Ōsha' (3,595 ft.), easily ascended in about an hour from Salt, and affording wide views northwards. To SE. of it rise successively Khirbet el-Foq'ān (3,248 ft.) and Kōm Yājūz (3,051 ft.). The line of hills commonly known as J. Jel'ād extends for 7 m. NE. from J. Ōsha'; it is thought, however, that this name should be restricted to the part on which stand the ruins of Khirbet Jel'ād, a site not where the maps place it, near the Salt-'Allān road, but five or six miles farther E. on a western affluent of W. er-Rumeimīn, ten miles NE. of Salt. Below this line of hills the ground falls northward in four terraces. Under 'Allān, between that place and J. Meisareh, is a fertile plain, El-Ardh, with rich pasture; under Suweileh, towards the middle of the watershed, the depressed alluvial plain, El-Buqei', extending

some 9 m. from SW. to NE., with a breadth of about 6 m., is probably the bed of a former lake draining into W. er-Rummān. The rich soil of El-Buqei' forms fine meadow land round the springs and ruins of Khirbet el-Bāsha; the plain may be compared with a smaller depression called Hem el-Belqa, some miles farther to SE., between W. el-Hammām and 'Ammān. Of the eastern part of the slope, N. of Yājūz, little is known in detail. Where it has been crossed, between Yājūz and N. ez-Zerqa north of 'Alūk, it appears to resemble the country north-east of J. Ōsha', with glades, valleys, and hills covered with scattered trees, and with excellent pasture in many places. Towards the eastern bend of N. ez-Zerqa the trees disappear and the country becomes bare, forming a transition to the border of the Hamād. The short south-eastern slope is bare and waterless, and without much importance to the district as a whole. The western slope is formed of spurs from J. Jel'ād and J. Ōsha', diminishing in height northwards to the low range or ridge, Dhahr el-Meisareh, which drops rapidly towards the lower Zerqa between Tulūl ed-Dahab and Deir 'Alla. Between the higher hills and the Ghōr, along the southern part of this slope, intervenes an irregular line of lower hills, El-Hamra'yeh, extending to a point rather N. of the Nāblus-Salt road, and cut by numerous watercourses. The triangular upland between the above slopes is not a level plain, but is interspersed with irregular hills. It is fertile, cultivated for cereals both by the Belqāwīyeh Arabs (see below) and by the inhabitants of the villages round its borders, and has always possessed importance as lying on the main line of approach from Judaea to the Haurān via 'Ammān: the high road between Salt and the latter place crosses it from west to east. The altitude of the heights commanding it increases from S. to N. On the south rise Umm es-Semmāk (3,179 ft.) and Khirbet Sār (3,190 ft.); on the north Jubeihet el-Kebīreh (3,468 ft.) and Khirbet Khuldeh (3,586 ft.), the height of which is within a few feet of that of J. Ōsha'.

Watercourses in 'Ajlūn

W. Rājib, rising about 3 m. due west of Sūf, near the culminating point of the country, is separated from *N. ez-Zerqa* by the southern part of the main watershed, the course of which it follows on the northern side, descending first almost S., then turning WSW., to flow down to Jordan. It carries water almost from its head, and is the most copious stream between Zerqa and Yarmūk, though much diversion for purposes of irrigation reduces the volume in its lower reaches. It is known successively as *W. el-Khadhr*, *W. Hammūr*, *W. 'Arabūn*, and *W. Rājib*, and like all the western 'Ajlūn watercourses runs mostly in a deep narrow valley, partially wooded, and rich in waterside growths; it is most open, and has most cultivable ground, near the village of Rājib. On the l. (southern) bank, where the watershed is generally near, its affluents are short and of no importance, the only tributary of any length on this side being *W. es-Sūq* (*W. Shām*), which comes in from the E., rising south of Sākib; it has no perennial brook. Along its lower course the water-parting dividing it from *W. Kefrinji* to N. abuts close upon the bed, but recedes above the village of Rājib, and leaves space for an affluent with extensive branches, rising near the head of the main stream and S. of *El-Bediye*: the lowest branch on the l. bank, *W. Sarabīs*, alone carries a permanent stream, having springs in its valley. An irrigation-channel more than a mile long runs along the north bank from Rājib westwards.

W. Kefrinji is important as having on its banks the three large villages of Kefrinji, 'Ajlūn, and 'Ain Janna its upper middle valley forming the heart of higher 'Ajlūn, a beautiful and healthy region, still finely wooded. Rising on the main watershed west of Sūf close to the north of *W. Rājib*, and flowing in a general SW. direction, it has apparently fewer local names than other watercourses of its length, and is generally known as *W. Kefrinji* or *W. 'Ajlūn*. It begins to carry water about 4 m. from its head, just above the village of 'Ain Janna, and is swollen at 'Ajlūn by a brook from its northern tributary,

W. 'Ain et-Teis. Below 'Ajlūn, its volume is increased by the perennial W. ed-Deir, joining it on the S., near the village of 'Anjara. Its other tributaries bring it little water except in winter. The longest on the northern slope rises N. of 'Ajlūn, passes N. of Qal'at er-Rabūd, and then bears S., joining the main stream, as W. el-Emzeirīb (Muzeirīb), a little below Kefrinji. Two long southern tributaries, rising S. of this village, run some miles in a westerly direction, joining W. Kefrinji before it narrows for its passage through the hills into the Jordan Valley. At the outlet of W. Rājib into the Ghōr there are the remains of an arched aqueduct; a channel diverted from the l. bank in the hills turns two mills before its issue S. of Faqāris.

W. *el-Yābis*, of which the chief upper branches rise on the watershed N. of Sūf, in the neighbourhood of Ras el-Imnīf, flows almost W., entering Jordan about 9 m. N. of the mouth of Wādi Kefrinji, the upper branches of which are quite close to its own. Its basin is widest S. of its upper and middle course, where it ramifies through three long tributaries, W. el-Miqwas, W. Bā'ūn, W. 'Abd el-'Azīz, each with numerous local names; but these bring it little water except in winter. Farther W. its valley narrows, the stretch of hills between its lower course and that of W. Kefrinji draining direct to Jordan from a water-parting which runs N.-S. The chief wādis of this subsidiary catchment-area are W. Sūfara and W. Seleikhāt (El-'Āsi), between which lies the village of El-Khirbeh, and to the north, W. el-Libbeh, none of them carrying perennial water for any distance. W. el-Yābis has a perennial stream from 'Ain el-Beidha about $1\frac{1}{2}$ m. above the village of 'Arjān. On the r. (N.) bank, W. el-'Ain and W. Murabba' come down between the villages of Jedeideh and Kefr Ābil, but neither has a permanent stream. In its lower part W. el-Yābis runs in a deep gorge with sides which are often precipitous and of great height.

W. *Siqlāb* begins on the main watershed not far N. of W. el-Yābis. As in the case of that wādi, the catchment-basin is widest in the SE., the upper branches spreading across some

ten miles of country, while the lower course is constricted into a single narrow valley. The most important upper branch, extending farthest SE., is successively known by the following local names: W. Rashdān, En-Nasab, 'As'as, Damak, and Seneisil, below which the main valley is W. Hammām and, finally, Siqlāb. A northern branch, running almost parallel and joining at W. Hammām, is first W. el-Hamra, then W. Abu Shawal, and W. Tibneh, the important village of that name lying between it and W. Damak to the south. W. Shārūt (El-Mezār) and 'Ainbeh (El-'Ahseini) are eastern, and W. Hallān ed-Dīk, El-'Ayūn (Izmāl, Fadl), and 'Amūd north-eastern tributaries of W. Tibneh. W. Siqlāb has a continuous stream of perennial water only in the last six miles or so of its course; but there is a brook about a mile in length flowing from 'Ayūn el-Hammām just below the confluence of W. Seneisil and Tibneh, and reinforced half-way by other springs, 'Ayūn el-Jurn.

As in the case of W. el-Yābis, the region S. of the lower course of W. Siqlāb drains independently to the Jordan Valley. The more important wādis of this slope are El-Jisr (Sartabeh), rising NE. of Kefr Ābil, Jirm el-Mōz (Et-Tīneh), on which is Fahl, Seil el-Hammeh, with hot springs, and W. Abu Zeyyād (El-Makhrūgeh), all perennial in their lower courses.

W. *et-Tayyibeh* rises a little further N. on the main watershed than W. Siqlāb. It is peculiar in having no tributaries of any length, its valley being closely confined on either side by those of other systems from its head to its outlet into the Jordan valley, on the S. by W. Siqlāb, on the N. by W. el-Hasa (Qusseib, En-Nuheir, El-Bir), draining directly to Jordan, and by W. Shōmar, a tributary of W. el-'Arāb. W. *et-Tayyibeh* has the following local names from E. to W.: Hiyār, Habaqeh, Jurūn, Seheil, Semmū', Tayyibeh. Near the village of Semmū', on the S. side of its middle course, the wādi bed is 500 ft. below the surrounding plateau; the village of Tayyibeh is also high on the plateau above the N. bank a little farther to W. Though the wādi is torrential in winter, at other seasons it has perennial water

only in the last five or six miles of its course, where it winds out into the Jordan Valley.

W. el-'Arāb has a very fertile valley, and is the most considerable wādi between Yarmūk and Zerqa. Its upper branches rise on the main watershed west of Irbid, a short distance north of the head of *W. et-Tayyibeh*. Its two great tributaries are *W. Zahar* (with two branches, *W. Shōmar*, and *W. Ibsarr*), and *W. el-Ghafr*, which, rising near the same point, runs first to Irbid, then past Sōm, receiving on the r. bank *W. el-Haddād* and *W. Barūqah*, more than a mile above the point where a perennial stream first begins, and the valley properly bears the name of *El-'Arāb*.

The first spring rises at an altitude of 619 ft. above the Mediterranean, and in its ten-mile course *W. el 'Arāb* proper, flowing with a rapid stream between rocky limestone sides, drops close upon 1,500 ft., the altitude at the bridge near Shūneh being — 689 ft., and at the confluence with Jordan, 200 ft. lower : for part of its course the stream thus flows below the Mediterranean level. The brook produced by the springs above the confluence of *W. Zahar* has been estimated to yield $26\frac{1}{2}$ cubic feet a second of good clear water, and below the confluence double the amount, until the outlet into the Ghōr is reached, when the quantity diminishes. The valley is at first deep and narrow, with banks rising on the north side for 800–900 ft. to Umm Keis, several brooks here descending the slopes ; it gradually widens towards the Ghōr, green meadows now bordering the stream, which is described as full of fish ; flour mills succeed each other along the lower course. *W. Zahar* has perennial water in its last two miles, and is here fed by many springs yielding excellent water. Its stream at the point where the *Darb el-Eqfūl* (*Qfūl*) crosses has been estimated in June as 14 ft. wide and about 1 ft. deep ; the brook is rapid, turning a number of water mills and forming pools or ponds full of fish.

Watercourses in the Belqa

W. Kefrein (*W. Jurf Abu ez-Zīghān*) is formed by the confluence of *W. Nā'ūr* and *W. es-Sīr*. The former rises under

Semmāk on the plateau 6-7 m. N. of Hesbān, and becomes perennial below Khirbet Nā'ūr, where are a spring and waterfall. Below this point its banks are high and often wooded, while its brook is swollen by additional springs. About three miles farther down it receives on the r. W. esh-Shita, with a brook in its lower course : here it is sometimes known as W. Bahhāth. After another 2 m. it is joined on the same side by W. es-Sīr. This tributary, beginning not far E. of the village of Fuheis, has perennial water from 'Ain es-Sīr, below which it runs in a wooded valley for 5 m. to 'Arāq el-Emīr ; between this point and its junction with W. Nā'ūr it descends rapidly and forms numerous cascades.

Below the confluence the joint streams are known as W. Kefrein, which runs in a general SW. direction for 8 m. to Tell el-Kefrein on the edge of the Jordan Valley, above which a long irrigation-canal runs off to NW. ; from here the stream is known as W. Jurf Abu ez-Zīghān. From Tell el-Kefrein it runs SW. across the Ghōr es-Seisebān and joins W. Hesbān in 3-4 miles.

W. *Nimrīn* (W. Sha'īb), the valley of which is followed by the road from Jericho to Salt, rises near Salt and runs first in a southerly direction through an open valley with rich garden cultivation, having from the beginning a perennial stream soon enlarged by several springs. After about 4 miles, it bears SW. and then SSW., the banks rising more steeply and to a greater height ; they are not wooded, but the brook is lined with large oleanders, willows, and canes. About 7 m. from its south-westerly bend, it bears almost W. and in another mile enters the Ghōr at Tell Nimrīn, to be known for the rest of its course as Wādī Nimrīn. The chief affluents of W. Sha'īb come from the NE., from the border of the upland plateau between Salt and Semmāk. Two only need be mentioned. W. el-Azraq, crossed about 3 m. SE. of Salt on the way to Fuheis, has a permanent brook between high rocky banks, partly wooded, and turning several water mills. W. Jerī'ah rises a mile or so E. of W. Sha'īb about 5 m. above their point of junction ; it runs more or less parallel, on the far side

of an intervening local watershed, having several springs along its course, then bears round a spur towards Tell Nimrīn. It is not wooded, and has no perennial stream; the road from the Jordan to 'Ammān via 'Arāq el-Emīr follows part of its lower course. Few of the wādīs reaching the Ghōr farther north are accurately known. W. Heseiniyāt, up which runs a frequented alternative track to Salt, comes in about 3 m. north of W. Sha'ib. This wādi has no perennial brook, and less vegetation than W. Sha'ib; there is only one spring, 'Ain et-Tīneh, with a limited supply of water. Between W. Heseiniyāt and N. ez-Zerqa the following watercourses issue in the Ghōr at intervals of a mile or so: Wādīs 'Ausej, Meidān, Milh, Ratam, Abyadh (in a deep ravine cut through white hills), Sidreh (crossed by the Jisr ed-Dāmīeh—Salt road and T.L.), Ibtein Ghazāl, and Qaneyyeh. It does not appear that any of them have perennial brooks.

One great wādi, with its affluents, drains the whole northern slope of the Belqa.

Nahr ez-Zerqa, the upper branches of which, W. 'Ammān and W. el-Hammām, rise about the high point Jubeihet el-Kebīreh S. of Suweileh, makes a great easterly bend in its middle course, returning upon itself, and at last flowing W. to the Jordan: Jubeihet el-Kebīreh is barely 20 miles as the crow flies from the confluence, but the wādi itself, without counting the windings, covers three times this distance. W. 'Ammān first carries a perennial stream a mile or two above 'Ammān, though the water is discontinuous in dry weather for a few miles below the town. Running now NNE., it is joined on the l. about 6 m. from 'Ammān by W. el-Hammām, which has taken a more direct route, carrying a brook from 'Ain Yājūz, 6–7 miles up its course. The joint streams now begin the great bend round to the fords below Jerash, and are known finally as N. ez-Zerqa from Qal'at ez-Zerqa onwards. From the fords the course is SW. and W. for 15–16 m. to the outlet into the Ghōr near Deir 'Alla. Beyond the outlet a course of 6–7 miles to SSW. is followed by a short final bend to NNW., when the Jordan is reached. The *Nahr ez-*

Zerqa can hardly be classed as a river, though it may be so described after heavy rains, when it runs rapidly and in great volume : at such times it cannot be forded in its middle or lower course. At most seasons it is a brook flowing over a stony bed, and having, when seen from a distance, the grey blue colour to which it owes its name. The valley is fertile throughout, and is followed by a good track almost all the way. Except in its narrowest parts there are fields and small cultivated plains along its course, with numerous orchards and gardens irrigated from ancient channels ; these are most numerous above the fords to Jerash, and extend E. towards Qal'at ez-Zerqa. Much wheat is grown here, ground by mills beside the stream ; the largest are found near the crossing of the eastern road from 'Ammān, between the main Jerash fords and Meshra' en-Nasrāniyeh, and near Tulūl ed-Dahab ; along this great wādi the traveller is hardly ever out of sight of flocks and herds, or of tillage. From 'Ammān, down to the westward bend near 'Ain el-Jirm, the hills on both sides are low and bare. The valley continues open and wide down to a point below the Jerash fords, but the sides, especially on the r. bank, now rise more steeply ; in the lower part of this section trees are found upon the slopes. Below the Jerash fords the valley contracts, and remains narrow, for the next dozen miles to Tulūl ed-Dahab, four miles from the outlet into the Ghōr ; the width is now sometimes as little as 100 yds., and the rock-formation being chiefly sandstone, there are frequent landslips. But even in these twelve miles, there are cultivated bottom-lands at intervals, and a frequented track runs along the stream. Between the outlet into the Ghōr and the mouth, the banks are lined with trees, shrubs and vegetation, and at the confluence with Jordan the stream runs out through dense thickets. At this point N. ez-Zerqa is some 30 ft. across, less than a quarter of the breadth of Jordan, though it has the more rapid stream. In winter all the ground about the confluence is flooded, forming a lake known as Watā'at el-Khatālīn. At 'Ammān and Qal'at ez-Zerqa the wādi is now crossed by

bridges. The number of secondary fords is large, but the chief are at the points where the tracks from the Belqa to 'Ajlūn cross the stream. The most frequented are those on the main road from Salt to Jerash. Here in summer and autumn the brook may be 25 to 30 ft. across and 2 ft. deep; in the early part of the year it would be both wider and deeper, and after heavy rains swells to a rapid river some hundreds of yards broad (Schumacher). The ford next in importance is that on the alternative route from Salt, Meshra'en-Nasrānīyeh, some miles farther down; here, as late as May, there may be a strong stream up to horses' girths. At the crossing of the track from 'Ammān to Jerash via Yājūz, above the main Jerash ford, the stream, in autumn, has been estimated as no more than 10 ft. broad and a foot deep (Le Strange). Still higher, the fords of the easterly 'Ammān-Jerash road via Qal'at ez-Zerqa present no difficulty in normal weather. The telegraph line from Salt to Irbid does not cross with any main road, but passes 2-3 m. to the E. of the Nasrānīyeh ford.

The total fall of N. ez-Zerqa between 'Ammān and the Jordan is some 3,500 ft. In the first 30 miles or so, to the Jerash fords, there is a gradual slope, the difference between the altitudes at the two places being, roughly, 1,500 ft. Between these fords and Tulūl ed-Dahab the section in which the stream cuts a sinuous way through the higher hills, there is a drop of 1,350 ft. in about eighteen miles, windings included (crowfly distance, $13\frac{1}{2}$ m.). In the four miles between Tulūl ed-Dahab and Deir 'Alla, the fall is about 300 ft.; in the remaining $10\frac{1}{2}$ miles, 430 ft.

The frequented nature of the N. ez-Zerqa valley is in one respect a danger to health. Pilgrims regularly camp on its banks just above Qal'at ez-Zerqa, and a quarantine station is annually established there. Perhaps from this cause typhus is very prevalent among the Bedouin farther down the valley.

The affluents on the l. bank below W. el-Hammām are imperfectly known, owing to the absence of a survey of the Northern Belqa. Two considerable watercourses, W. el-Khalleh

and W. Abu Erjāl come in on either side of the ruins of Bīreh, 2 m. NNW. of 'Ain el-Jirm, but their courses have not been described. W. er-Rummān and W. er-Rumeimīn, are both crossed by the main Salt-Jerash road, but are still imperfectly known. The former appears to rise SE. of the depressed plain of El-Buqei', which is said to drain into it (see above, p. 584), and follows a NNW. course, joining N. ez-Zerqa about half-way between the Nasrānīyeh crossing and the main-route fords S. of Jerash: it is thus a distinct tributary, and not, as once supposed, an affluent of W. er-Rumeimīn. In the bed, N. of the Turkoman village of Rummān, is a brook flowing from a spring; probably the wādi has perennial water from this point. W. er-Rumeimīn rises as W. Abu-Quttein on the E. of J. Ōsha', running NE. through a wooded and partly cultivated valley to a point a little N. of the village of Rumeimīn; several springs are found in or near its bed. At Rumeimīn it receives on the r. bank W. es-Seliḥah, with a perennial brook and waterfall; on the l. bank, W. Jel'ād (W. Tāleb), running from the hills past Khirbet Jel'ād, and having a spring bearing its name. It now descends NNW.-N., reaching N. ez-Zerqa close to the E. of the Nasrānīyeh ford.

The affluents on the r. bank of the upper N. ez-Zerqa are no better known. Two watercourses, W. Rafī'ah and Qattār, rise near Ras el-Marqab, 4 m. E. of 'Ammān, and run parallel with W. 'Ammān, joining near the northerly bend to Qal'at ez-Zerqa. The largest tributary on this side, W. edh-Dheleil, comes in from the E., just above 'Ain el-Jirm (see p. 598). It has been crossed about 8 miles farther up its course, where it was found to have a broad valley with evergreen oaks and bushes; Beni Hasan Arabs have stated that it rises near Salkhad in Jebel Haurān (Robinson Lees). Though W. edh-Dheleil carries no perennial water above the last mile of its course (from 'Ain Ehseyyeh), the marks of debris upon its banks shows that at times it flows with a stream estimated, near the confluence, at 50 to 70 yds. wide and 3 to 6 ft. deep. A Roman road runs up the r. bank, perhaps continuing to Salkhad.

About 5 m. below W. edh-Dheileil, W. Kharasān comes in from NNE. It rises some 10 m. to NNE., near Khaneizir in the Beni-Hasan country, as W. el-'Ain, and has perennial water only in sections, one of half-a-mile, below 'Ayūn ed-Deber, 3 m. above its mouth, the other extending over the last mile of its course.

W. Qaneyyeh enters from N. only $\frac{3}{4}$ m. west of W. Kharasān, near the ford of the eastern 'Ammān-Jerash road. It rises on the high ground near J. Qafqafa, having several upper branches, the chief being known as W. el-Mitwi; but perennial water first occurs in W. esh-Sheri; an affluent coming in on the W., not far from the village of Medwar Nöl: in this wādi are important water-holes, Bir esh-Sheri, where the Beni Hasan bring their herds. Below this point, the main wādi is known as W. Sahabeh, but there is still no continuous perennial stream for some $4\frac{1}{2}$ m., when an affluent comes in from N., bringing a brook from the springs of 'Ayūn el-Keram. From here, down to N. ez-Zerqa, the wādi, now known as W. Qaneyyeh, carries perennial water.

About 10 m. farther down stream westward, two other northern affluents come in side by side, their mouths forming a delta. These are, first, W. er-Riyāshi, rising NNE. of Jerash, and having a perennial stream from a point a little above the village of Nebi Hūd, and second, the Wādi of Jerash, known also in its lower course as W. et-Tawāhīn and in its upper as W. ed-Deir. This wādi rises in the central hill region W. of Sūf, and flows first SE., but turns S. above Jerash, in which direction it continues down to Zerqa: it has a perennial stream the whole way from Sūf.

West of W. Jerash is a second W. et-Tawāhīn, bringing a brook down from Teketteh village. Again a short distance to the W., is another perennial brook, W. el-Jidi, in the upper valley of which are several springs. Along the steep northern slope, between this stream and the Jordan valley, are a number of short wādis, several containing brooks, of which only the two following need be mentioned as means of access to the 'Ajlūn hills from the Belqa. W. Difla, with its branch W. Fawwārah,

3½–4 m. down-stream from W. el-Jidi, is the watercourse followed by the westerly route from Salt to Jerash, via the village of Birma ; it has two chief springs, 'Ain Difla and 'Ain Fawwārah, and is perennial. About 6½ m. farther down, opposite Tulūl ed-Dahab, is the perennial W. Abu er-Ruweis, by the side of which a track goes up to Rājib : it falls 2,820 ft. in its short length of 2½ miles, and the descent of neighbouring wādis is proportionately steep.

SPRINGS AND WELLS

'Ajlūn is in most parts rich in springs and brooks with good drinking water. The exceptions are the east side of the watershed, and the high plains or plateaux between the wādis in the districts of Kūrah and Wustīyeh, W. and SW. of Irbid, where cisterns are chiefly employed. In the south, as above noted, several perennial brooks descend the steep northern bank of Zerqa from Me'rād, increasing in length and volume eastward to W. ed-Deir (Jerash), which has a good stream; there are copious springs in and to N. of Jerash itself. All the main wādis of J. 'Ajlūn have abundant water, mostly sufficient for irrigation; the five principal villages, Rājib, Kefrinji, 'Ajlūn, 'Ain Janna, and Sūf, have abundance from springs and streams. In El-Kūrah the slope towards the Ghōr alone has brooks of any length (see above, p. 580); W. 'Ain et-Tīneh (Jirm el-Mōz) at Fāhil (Pella) has a number of springs yielding unlimited supplies. In the higher central region there are few springs or brooks other than the short length of W. el-Hammām NW. of Tibneh, fed by the springs 'Ayūn el-Hammām and 'Ayūn el-Jurn (p. 587). In El-Wustīyeh perennial streams are again few : they include W. el-'Arāb, the lower W. Zahar and neighbouring brooks, and W. Qusseib with a head stream running from the village of Mendah. In the lower W. el-'Arāb, the circular hill Tell Zar'ah has a small pond on its top, in which a spring rises. The two northern districts of Es-Sīru and El-Kefarāt have plentiful water, streams descending on both sides of the ridge on which Umm Keis stands. 'Ain el-'Asal, by the ruins of

El-Qabu, a couple of miles E. of Umm Keis, is a fine spring with stream flowing south. Farther E. on the same side of the ridge, at the top of the southern slope, are 'Ain el-Qasab, 'Ain Ra'ān, and 'Ain Barūqah, with 'Ain Hātim, S. of Ibdar; on the N. side of the ridge are: a spring near a few huts at El-Mezra' 1 m. N. of Umm Keis, 'Ain Kitāb, 'Ain es-Sahn, 'Ain el-Kileh, and 'Ain Umm el-Kharaq. In the SE., 'Ain Fu'arah, at the village of that name, on a branch of W. el-Haddād, yields a copious supply. The remaining springs of the district are on and about the Sherī'et el-Menādhireh. In the valley, N. of Umm Keis, are the four hot springs of El-Hammeh with temperatures ranging from 83° F. to 115° F.: the largest has a basin of 60 yds. by 30 yds., and an average depth of 6 ft.: the brooks flowing from them fertilize a long strip of land, and there is dense growth of palms and canes about the pools where they rise. The outflow of one spring, Hammet esh-Sheikh, a little below the ruins, with a temperature of 115° F., works a mill; near it is another spring of rather lower temperature, Hammet Rīh el-Ghanam. Each yields about 35 cubic ft. per second. These springs are within easy reach of El-Hammeh station on the Haifa-Der'a line. About a mile E. of El-Mukheibeh is a small lake or pool, Birket el-'Arā'is, 130 yds. square, with marshy edges overgrown with rushes, and clear but slightly brackish water: duck and water-fowl are said to be found here. It lies in a depression a little above the Sherī'eh, with hills on all sides but the N.; it increases in size in winter, but has no apparent outlet. In May, 1885, its temperature was 81° F., nine degrees warmer than the air.

The ancient aqueduct known as Qanāt Far'ūn (Pharaoh's watercourse), running along the watershed past Ibdar to 'Ain et-Turāb, at the SE. corner of El-Kefarāt, is said to be traceable as far as Dilli in the Haurān. It is an open channel of masonry, almost semicircular in section, lined with concrete and rendered in cement. In El-Kefarāt, in addition to the streams in the Sherī'eh and its affluents (see pp. 570 ff.), the following good springs may be mentioned: 'Ain Samar, at the

village of that name, and 'Ain el-'Ulleiqeh, half-way up W. el-'Ulleiqeh (middle W. Qaleit).

East of the main watershed, the district of Beni Hasan is only well supplied along the N. ez-Zerqa (see p. 594). Farther north, the water-holes and standing wells are neither reliable nor wholesome. Such are: Bir esh-Sheri, west of Medwar Nöl, and Bela'mah about half-way between 'Ain el-Jirm and El-Mafraq. At 'Ayūn el-Keram, 2-3 m. S. of Medwar Nöl, there is enough water to irrigate vegetable gardens. The three districts N. of Beni Hasan, Beni 'Obeid and Beni Juhma, rely almost entirely upon water stored in cisterns, the wādis carrying water only in the rainy season.

There are few parts of the northern Belqa in which drinking water cannot be obtained within moderate distances. The two chief exceptions are the slope to the Jordan valley between W. Sha'ib and N. ez-Zerqa, and the interior slope north of El-'Āl, draining to the south and east. Like the plateau of Moab, the hilly upland between Salt and 'Ammān is superficially poor in water; but there is abundance round its edges, and its north-eastern angle is enclosed by two perennial streams. It will have been gathered from what has been said above that the three larger wādis of the south-western slope have brooks which run all the year; the longest, W. Kefrein, has two affluents, which are perennial for the greater part of their course. In the intervening country there are many springs, chiefly along minor wādis. These are too numerous for individual record; special mention can be made only of well-known and copious sources: 'Ain Hesbān, the spring and waterfall at Khirbet Nā'ūr, the abundant springs in and below Salt, and the hot spring of El-Hammām near the l. bank of W. Kefrein, about 2 miles ESE. of Khirbet el-Kefrein, where there is a pool of sulphurous water amid canes and rushes, with a temperature of 98° F.

The northern Belqa slope to N. ez-Zerqa (including, as already stated, the part of the upland plateau N. and W. of 'Ammān) is plentifully supplied. From 'Ain 'Ammān and 'Ain Yājūz these watercourses derive perennial brooks; while the

northern slope proper has many known running brooks and springs, and will certainly prove richer when it has been surveyed. N. ez-Zerqa itself has good water throughout: springs on its course for special mention are 'Ain Ghazāl, 3-4 miles below 'Ammān; 'Ain ez-Zerqa, Qal'at ez-Zerqa, 'Ain el-Jirm, 4 m. to the N. of that place; and two hot springs—'Ain el-Ehmeimeh by the main fords to Jerash, and Tell el-Hammeh near the outlet into the Ghōr. Wādīs Rummān and Rumeimīn have running brooks and springs at the villages bearing their names; W. Selīhah, an affluent of the latter stream, has a fine waterfall. In the meadowland on the depressed plain El-Buqei' there is a good spring at Khirbet el-Bāsha, while above, on the high slopes to the S., the Circassian village of Suweileh is abundantly supplied by more than one copious spring. On the westerly route from Salt to Jerash there is plentiful water at the ruins of 'Allān and Shīhān. Of conditions within the eastern bend of Zerqa less is known: the route followed by Le Strange between 'Ammān and Jerash would seem to be poorer in water than those farther west; but in a country so rich in pasture there must undoubtedly be many sources yet to be discovered.

Forests.—A great part of this area is naturally rich in timber. Before the war, the scantiness of the population prevented denudation from spreading very fast, except in the neighbourhood of the Circassian settlements; otherwise, reckless pollarding by charcoal-burners and others, and the destruction of young trees by goats, would have laid whole tracts of once wooded country bare. The war has led to systematic felling in tracts near practicable roads.

In Ajlūn the wooded area is of forest density only to the west of the main watershed, and thickest on the higher ground of J. 'Ajlūn to the west of Sūf. It extends northward over Me'rād and J. 'Ajlūn to beyond W. Tibneh, N. of the village of that name; north of this region the country is comparatively bare until the slopes of W. el-'Arāb are reached. Beyond this wādi another wooded zone bends from Umm Keis north-eastward through El-Kefarāt, then east towards the Haurān, finally

SE. up W. el-Ghafr to Sōm and beyond, so that west of the watershed only the district of El-Wustiyeh is poor in trees, though even here oaks are scattered upon the plateau. As in the case of the corresponding area in the Belqa, the Jordan slopes are generally bare.

East of the watershed there is no thick woodland. The forest ceases before Sūf is reached, and the valley of W. ed-Deir (upper W. Jerash) is open, with only occasional trees ; but even beyond this wādi, on the undulating ridges of the Beni Hasan district, there are numerous terebinths, singly or in groups. In the south-western corner of the district, along N. ez-Zerqa, trees continue for some miles ; in the south-eastern corner terebinths follow the valley of W. Dheileil beyond the Hajj road and the Hejaz Railway. Beni 'Obeid has trees only in the NW., where it is traversed by upper branches of wādis belonging to the western slope ; Beni Juhma is wooded in like manner only in the adjoining tract. In the Belqa, a wooded zone runs along the upper part of the south-western slope from the neighbourhood of 'Ain Hesbān to that of Salt (see above), and trees interspersed with glades are scattered over almost the whole northern slope from the line J. Ōsha'-Yājūz down to N. ez-Zerqa, the country growing barer within the eastern bend of the wādi. The short western slopes to the Jordan valley have no trees, though willows are found along the stream in W. Sha'ib, and possibly elsewhere. The chief tree both in Belqa and 'Ajlūn is the evergreen oak, *Quercus coccifera*, which grows here to a greater size than W. of Jordan. The pine (*Pinus Halepensis*) occurs on the higher ground in Me'rād, about Sūf, at Khirbet Mahana N. of 'Ain Janna, and on the slopes of J. Jel'ād in the Belqa. These two species represent, with admixture of terebinth and storax, the original forest ; among other trees may be mentioned the carob, the pistachio, and the hawthorn. The oriental plane, juniper, poplar, ash, elm, and tamarisk are not forest trees, and some of them are not indigenous. The wild almond is frequently found, and in greater profusion in W. el-'Arāb, especially below Zahar el-'Aqabeh ; walnut-

trees are grown at 'Ain Janna. The willow flourishes along running streams, where also oleanders grow almost to the size of trees. Among shrubs forming undergrowth, mention may be made of the laurustinus, cytissus, and arbutus.

CLIMATE

The climate of the Belqa and of 'Ajlūn is healthy, as both are high, and there is little or no stagnant water; but it can be very cold, and the Arabs say of the Belqa that it is one of the homes of cold. The chief rainy season begins in autumn, but there may be heavy storms in spring or even early summer. During a spring equinox Oliphant, travelling between 'Ammān and Salt, experienced drenching rain and bitter cold, and compared the weather to that of the Scottish highlands in November. As a rule, rain does not fall between May and October, but Schumacher in N. 'Ajlūn records heavy showers in the second week of one June, lasting the whole day; and on May 18, 1913, regular cloudbursts over the Hamād south of the Haurān, and farther S. again, beyond the Hejaz Railway, caused destructive floods in the basins of the Zerqa and Yarmūk (see Chap. XVII, p. 570). After the rain the hail lay on the ground for hours to the depth of $2\frac{1}{2}$ ft., the temperature having fallen from a sultry heat to a considerable degree of cold. Snow falls heavily every winter in El-Kūrah and J. 'Ajlūn; in the more northerly, but lower, region including Es-Sīru, El-Wustiyeh, El-Kefarāt and Beni Juhma, it falls only once in two or three years, and hardly lies more than a couple of days. In February, 1898, snow fell heavily at Hesbān for two days, rendering the Kerak road very difficult. In the first part of the year the nights and early mornings are often frosty. In the N. of Es-Sīru the thermometer in March has registered 4 degrees of frost. At 'Ammān, Tristram found ice on the water-basins in early May. In June the nights are cool and the early mornings cold in the valley of the middle Zerqa. In high summer it may be oppressively hot, though as a rule a north-westerly breeze blows from about 9 a.m. until sundown. Maximum temperatures which have

been noted are : May, Zerqa valley, 98.6° F. ; July, 'Ain Janna, 96° F. ; late August, W. Warrān, 107°, Tayyibeh 100.4°. The following are average temperatures in N. Ajlūn recorded by Schumacher during a period of about three weeks between the latter half of May and the middle of June : 6 a.m., 66.5° F. ; 10 a.m., 86° F. ; 6 p.m., 76° F.

In autumn the nights and early mornings may be cold, and persistent morning mists last as late as 9 a.m. ; the days remain hot. In northern 'Ajlūn in early October, while the thermometer at noon registered 86° F. under trees, the night temperature was 50°. Before the winter rains a dry and enervating E. wind may blow for a fortnight on end.

MINERAL RESOURCES

There has been no systematic prospecting for minerals. At Maghāret el-Wardeh, about 1½ m. SSE. of Rājib, there is an old iron mine with galleries in the hill, from which Schumacher brought away specimens of ore in 1898 : the iron occurs in the Cenomanian chalk. In the Senonian, a few miles E. of Salt, are rich deposits of fish-coprolite and fish bone forming a phosphate chalk, exploited for a time by an Italian company, but abandoned on account of transport difficulties.

Drilling for oil was begun in 1912 by the Syrian Exploitation Company near the railway station at Maqārim on the S. bank of Nahr Yarmūk : here there is contact between pre-glacial lavas and upper calcareous rocks, and it was expected that the plane would be reached at 1,000 ft. In June, 1914, a depth of 600 ft. had been attained ; fevers prevailing in a desert region had hindered the enterprise, which was conducted by British mining engineers.

INDUSTRIES

Agriculture, fruit-growing, and the breeding of cattle, sheep, and goats, are the chief occupation of the people. The staple crops, both on the plateau, in the bottom-lands of the wādis, or in the cleared glades of the partly-wooded slopes, are wheat, barley, beans, and lentils, with some maize, dhura, and tobacco. The

calcareous soil, though fertile, is not equal to that of the Haurān for the growth of cereals ; if any comparison exists, it is in the N. of the district, where patches of volcanic soil are found, e. g. between Umm Keis and Ibdar, and E. of Kefr Jā'iz, Beit Ras, and Irbid. With industrious cultivation, however, such as is applied by the Circassians, average crops can be raised in most parts of the country ; the wheat of the plain between Salt and 'Ammān is of fine quality, and is exported to Jerusalem. The vineyards and fruit-gardens of the district are extensive and important. The former are cultivated entirely for the production of raisins, the chief centres being Salt and the larger villages of central 'Ajlūn, especially those in the Kefrinji valley. The grape crop of Salt is estimated as worth £T. 100,000 a year ; that of 'Ajlūn, though smaller, is yet considerable and is exchanged for Haurān wheat. Viticulture could without doubt be much extended ; numerous remains of terraced vineyards show that in ancient times it was general up to the Yarmūk, in the valley of which stream a few vines are to be seen to-day.

Fruit trees are grown for the most part along wādīs where irrigation is possible. In W. Kefrinji, at Kefrinji 'Ajlūn and 'Ain Janna, the gardens run for miles ; other gardens are found at various points in Sherī'et el-Menādhireh, W. ed-Deir at Jerash, W. Rājib, N. ez-Zerqa, and W. Sha'ib below Salt. The chief trees cultivated are apricots, figs, pomegranates, plums, and peaches. There are olive-groves round the greater number of the villages, but the trees are mostly of great age and receive little attention from their present owners. Oil is made by primitive methods for local use. When the olive-crop fails, as it does almost every second year, merchants bring oil from Lebanon and receive raisins in exchange. Oil-cake for cattle is made from sesame. Sumach for dye is grown by the people of Salt. The alkali-plant, or soda plant, is burned for lye in various parts of the district, the ashes being sent to places west of Jordan (e. g. Nāblus), where soap is manufactured.

Live-stock is extensively reared in this area. Both the

Belqa and 'Ajlūn are rich in grass ; the former has indeed always been famous for its pasture, its high altitude, regular rains, and heavy morning mists assuring it sufficient moisture ; the Circassians grow clover and other green fodder to augment the natural supply. Cattle are kept by the people of almost every village ; oxen are used everywhere for ploughing, and by the Circassians for drawing their two-wheeled carts. Goats are ubiquitous, to the great detriment of the young trees ; sheep are largely owned both by the fellahin and the Belqāwīyeh Arabs. Horses, however, are seldom to be seen except in large places like Salt and in the bigger Circassian villages ; donkeys are generally found, but are not as numerous as might be expected. Bee-keeping is general, both among Arabs and Circassians. Fowls are everywhere kept, but are of small size and produce small eggs.

The wild life of the country is capable of yielding useful supplementary resources. Boars are numerous in the cane-brakes of various wādis. Partridges and pigeons are everywhere common, and with shot-guns parties could without difficulty augment their food supplies from this source. In many perennial wādis fish are very plentiful ; in W. 'Ammān, Oliphant found them so numerous that 'he could have scooped them out with his hat'. Similar statements have been made as to other streams, e. g. W. el-'Arāb, W. Zahar, the pools of Nahr 'Allān, &c. According to Tristram, the common species is *Scaphiodon Capoëta* ; trout are said to be found in W. Zahar.

The suitability of the whole region for colonization was pointed out by Oliphant some forty years ago. Under Turkish rule there could be no satisfactory development of the country ; but the example of the Circassians has shown what might be done by colonists guaranteed from the exactions of a bad government, able to protect themselves, and too thrifty to fall into the moneylender's hands. The absence of rain between May and October reduces the necessity for farm buildings ; threshing is done in the open ; straw is stored in caves or ruins ; grain is kept in caves, or in pits, between

two layers of *tibn* or chopped straw, with a mound of earth piled above all. With any intelligent treatment of the forests, timber in sufficiency could without difficulty be both exploited and preserved. Had the woods of 'Ajlūn and the Belqa been properly maintained, a timber and charcoal trade of some local importance might have been developed. The Circassians of W. es-Sīr are said to have set up a saw-mill for the sale of planks in Jerusalem, and to have carted trunks across the Jordan; doubtless under a good administration and with improved communications the district might have supplied timber on a larger scale to various towns. But the improvident treatment of the woods by the fellahin and the recent destruction caused by the war have made great ravages among the mature trees. Probably a long recuperative period would be necessary before the woodlands could be made productive.

The only important industry of 'Ajlūn and the Belqa, apart from agriculture, is flour-milling. Mills are frequent in the larger perennial wādis, especially in N. ez-Zerqa, Sherī'et el-Menādhireh, W. Kefrinji, W. el-'Arāb and W. Zahar. A few local industries for the supply of Arab requirements are practised at Salt.

POPULATION

The population of the district falls into two parts, one sedentary, the other half-nomadic; the former is the more numerous, though in the absence of statistics the proportion between the two cannot be accurately stated. The larger settled centres are Salt, 'Ammān, Jerash, El-Husn, and Irbid. The remaining sedentary population is scattered through a number of villages and hamlets, of which the more important are chiefly found near the perennial streams.

Settled People.—The settled inhabitants of 'Ajlūn and the northern Belqa consists of: i. Arab fellahin, native to the region, and ii. immigrants of different race.

i. The Arab villagers, the great majority of whom are Mohammedans, belong to the same stock as the Belqāwīyeh

tribes (see below), and are probably descendants of tribesmen who adopted the agricultural life many years, perhaps centuries, ago. In a few places in the northern part of the district (Mukrabeh, Umm Keis, Deir es-Sa'neh) new-comers have entered the country from the west of Jordan (chiefly from Nāblus), or from the Haurān, but these form only a small proportion of the whole. The fellahin are by nature sturdy and fairly tall, lighter in complexion than the Haurān people, but also less powerful, not being so well nourished. Where they are well fed throughout the year, they are a fine race; thus the townsmen of Salt are distinguished by their good physique. But at present many fellahin are half-starved in winter, partly through their own improvidence, partly through lack of security, and a system of taxation which discourages industry and accumulation. The same causes which affect the physique of the fellahin also affect their numbers, and the tendency of the settled Arab to increase at a greater rate than the nomad is thus largely neutralized. No permanent effort was made by the Ottoman Government to render village life secure. It is true that between 1840 and 1850, on a threat of the fellahin—the only tax-payers—to abandon villages in North 'Ajlūn, troops were sent to exterminate the Sa'eidi of W. el-'Arāb; other tribes were driven out of the district, and those which remained were reduced to a subordinate position. But even here highway robbery continued common, and if these northern villages were themselves safer, the roads between them remained dangerous. Farther south, where the non-sedentary population is more numerous, the fellahin were despoiled in their homes, or even expropriated, so that places which should have been permanently inhabited were occupied or abandoned according to the behaviour of neighbouring tribes. More insidious enemies than the roving Arabs are the moneylenders of Tiberias and Damascus, to whom the careless peasant falls an easy prey.

The great majority of the settled Arab population is Moslem. Christians are settled in Salt, Fuheis, Rumeimīn, 'Ajlūn, El-Husn, and Zahr en-Nasāra in El-Wustīyeh; their total

number may be over 6,000, about three-quarters living in Salt; the adherents of the Greek Orthodox Church, who are in a large majority, have in the past looked to Russia as their protecting Power.

At Salt the Christians would appear to number approximately a third of the population, with a total of about 4,000 souls. Rather less than 3,000 are Greek Orthodox, Greek Catholic, and Syrian Orthodox. Protestants number over 300; there is an English Church, with school and hospital, and, in normal times, a resident doctor. The Latins number about 1,000, with church, convent, and schools managed by the *Sœurs de Charité*. The 3,000 Greeks have two churches, a convent, and schools. At Fuheis the population, which is all Christian (Greeks and Latins), may amount to about 400. At Rumeimīn the population of about 300 is again all Christian, the Greeks and Latins being nearly on an equality. At 'Ajlūn village there are some 250-300 Christians, almost all of the Greek Church, though there are a few Latin families; each denomination has a church and school, and there is said to be also a native Protestant preacher. At El-Husn about half the people are Christians, their total amounting to about 600, both Greeks and Latins having church, school, and hospice.

ii. The most important foreign element in the population is the Circassian. It has been introduced into this district by the Ottoman Government within the last forty years to support Turkish interests, and both as a political and economical experiment the measure appears to have been successful. As regards the Ottoman Empire as a whole, the movement began after 1859, when Russia annexed the Caucasus, and the Circassians in the conquered territory preferred emigration in the mass to Christian rule (see also Chap. V, p. 191). But Syria, south of the Yarmūk, received its first settlers after the Russo-Turkish War and the Bulgarian massacres, when Circassians were transplanted from the Balkans. The process of colonization has continued to the present time, partly by new importations, partly by the growth of the older villages, which overflow into fresh hamlets.

A Circassian community, of which the males are all armed with breech-loading rifles, has nothing to fear from such tribes as the Belqāwīyeh, who are being gradually ousted from all lands which the intruders covet. The more formidable Bedouin themselves are now kept at a distance ; it is said that on the upper Zerqa the Circassians some years ago made the drawing of water from the river a *casus belli*. The Turks sought to attach the Circassian to their interest by preferential treatment. Arabs were dispossessed to make room for him ; upon immigration he received a gift of seed-corn and a yoke of oxen ; in normal times he was free from conscription and taxation for a term of years. The good will of such a people, diffused along the desert marches in growing numbers, will necessarily be a matter of concern to any Power controlling the Holy Land. The Circassian retains his national dress, with Astrakan cap, and straight sword girded in front of his body. In addition to cultivating grain and raising cattle he keeps fowls and bees. He has the commercial instinct in a high degree. Roofing his house with timber, and constructing his own two-wheeled cart, he is a woodman and something of a carpenter and smith. His exclusive and clannish sentiment, which forbids amalgamation with the Arabs, is intensified by the maintenance of an effective system of communications, cart-tracks connecting almost all the Circassian settlements in the country. Before the war, a horse-drawn vehicle passed regularly between Jerash and ‘Ammān, and between Jerash-Muzeirīb and Quneiterah ; for short distances ox-carts were used. By this means the settlements in reality formed a confederation within the State ; and the solidarity of the Circassian immigrants must always present a problem to future administrators of the lands beyond Jordan.

The Ottoman Government introduced Turkoman colonists on the same system. The settlements of this people are less numerous, but they share many qualities of the Circassians and have in like manner served as a makeweight to the Arab element. Other non-Arab inhabitants are few. There are a few Kurds at Sahem in Kefarāt, a village belonging to a Kurd

from Damascus. Lastly there are negroes, scattered through the villages, where they hold subordinate positions ; small negro groups cultivate vegetables in the Ghôr as at Tell el-Manteh on the lower N. ez-Zerqa. A small negro tribe, the 'Arāb el-'Abīd, grazing its flocks on the northern slopes of W. el-'Arāb, claims a Sudanese origin.

Arab Tribes.—The unsettled population consists chiefly of the half-nomadic Belqāwīyeh tribes. These are intermediate between the village cultivators and the true nomads beyond the eastern border, from whom they in their turn suffer some of the injustice which they themselves inflict on the fellahin, being exposed to payment of the *khuwweh*, mostly in grain. They are probably all by descent Ahl esh-Shimāl, i.e. folk of northern Arabian stock, kinsmen, more or less remote, alike of those whom they oppress and of their own oppressors. Though living in tents after the Bedouin manner, the Belqāwīyeh till the soil for grain, and are thus bound, if within somewhat wide limits, to the vicinity of their fields and pastures. The modification of the nomadic life thus entailed has made them in some ways worse rather than better neighbours, since they have lost touch with the desert law without acquiring any other code in its place. 'They maintain a tribal organization and a vast network of tribal feuds in which the Government seldom interferes, even on behalf of settlers, Circassian, Christian or Moslem. The whole country is turbulent, crime abounds, and justice is almost non-existent. The villagers protect themselves as best they can, partly by force of arms, but mostly by paying tribute to the Arab Sheikhs in the form of unstinted hospitality and liberal propitiation by gifts in kind. Though the disputes often lead to bloodshed, they are usually small affairs, petty robberies taking the place of raids among the border tribes. But in the summer, when great numbers of the Beni Sakhr come up to the northern pasturage, and the 'Anazeh draw in from the east, the Belqa is the scene of continuous disturbance, ranging from pitched battles to the satisfaction of individual blood-feuds, and no established authority intervenes. Yet it is just in such frontier lands as

these that any strong administration would seize its chance, and herein lies the political importance of tribes like the Belqāwīyeh. They are cultivators after the inefficient manner of the Arabs, and like all the half-settled people, their numbers are surprisingly large in comparison with those of purely nomadic tribes. They have few camels, and those which they possess are bought from the Bedouin, not bred by themselves; but they rear large flocks of sheep and goats, and live richly on their milk during the spring. The fact that they own cultivated ground should give the Government a firm hold over them; they are immobilized thereby, nor do their pastoral conditions give them the means of rapid transport. Their numbers would make them a solid barrier between their wandering kinsmen, who can slip through the fingers of the law at any moment, leaving no pledge behind, and the permanently settled lands. Moreover their geographical position makes them the first problem to be dealt with, a problem on which the security of wide and fertile regions, now lying to a great extent derelict, must depend.' (*Handbook of Arabia*, I, p. 398.)

The following is the distribution of the chief Belqāwīyeh and 'Ajlūn tribes. (See also *Handbook of Arabia*, pp. 400-2.)

On the plateau and the SW. slope, i. e. S. of the J. Ōsha-'Kōm Yājūz line :

i. 'Adwān (400 tents), ranging to W. Hesbān, the chief Sheikh having a residence at 'Ain Hesbān. The sub-tribes are the Sālih, 140 tents (Hesbān), Nimr, 60 tents (Zabbūd, near Hesbān), Kā'id, 90 tents (between Hesbān and the Ghōr), 'Assāf, 70 tents (E. of Salt).

ii. 'Abbād (600 tents), district of Wādis es-Sīr and Jerī'ah. Sub-tribes : Manāsīr (near 'Arāq el-Emīr); Ifqaha, 70 tents (W. Jerī'ah); Nu'eimāt, 200 tents (NW. of Salt); Duweikāt, 120 tents (W. of Wadi es-Sīr).

iii. 'Ajārmeh (300 tents), Hesbān to the Ghōr. Sub-tribes : Muteiri'in, 70 tents (Suwānīyeh and Mushaqqar); Isifah, 40 tents (El-'Āl, near Hesbān); Sawā'ir, 30 tents (Sāmek); 'Ifeishāt, 25-30 tents (Nā'ūr); Harāfīs, 30 tents (plain of Mahālah); Sheneiqiyīn, 20 tents (Hesbān).

On the northern slope, between the Jebel Ōsha'—Kōm Yājūz line and N. ez-Zerqa :

Beni Hasan, 860 tents. Sub-tribes : Izīra, 50 tents (Rummān and Kamsa) ; Khawāldēh, 150 tents ('Alūk) ; Ghaziya'leh, 120 tents (Sarrūt) ; Khalā'ileh, 40 tents.

The Beni Hasan extend N. of the eastern bend of the Zerqa, into the district of 'Ajlūn bearing their name (see p. 580). Their chief camp is said to be between Khirbet es-Samra on the Hejaz railway, and Bel'amēh. Sub-tribes : Beni 'Aleim, 100 tents, about J. Qafqafa ; Rusheidāt, 100 tents (Mutawwi) ; 'Amūsh, 300 tents. On the west the Beni Hasan extend to W. Riyāshi (Tannūr), SE. of Jerash, where they find themselves in rivalry with the Circassians. In high summer almost the whole tribe goes N. over the Yarmūk into the Haurān and Jaulān, to graze their camels on the stubble-fields.

N. of the Beni Hasan, also giving their name to a district, are the Beni 'Obeid. The broken and wooded country of high 'Ajlūn is unsuited to permanent tent life. Tribes formerly ranging farther N., about W. el-'Arāb, have been broken up.

The purely nomad Arabs are rather periodical invaders than regular occupants of the district. The chief Bedouin of the Hamād who disturb the Belqa and 'Ajlūn are sub-tribes of the Beni Sakhr (see above, p. 608) and the 'Anazeh, who maintain a standing feud against each other. The *dīra* of the Beni Sakhr extends as far north as J. ed-Drūz, and in summer the greater part of the tribe comes north : it is then that encounters occur, sometimes on 'Ajlūn territory, with the Sha'lān, a sub-tribe of the Ruweilēh tribe of the 'Anazeh, who have occasionally been hard-pressed upon this border. When drought forces the Bedouin to seek pasture and water west of the Hejaz railway, an anxious time begins for cultivators, whether settled or half-nomadic, and incidentally for the Government. A cordon of troops may be required to keep the great herds of camels, escorted by horsemen armed with breech-loading rifles, from destroying all crops in the neighbourhood of the wells. Only large Circassian settlements, such

as those of 'Ammān and Jerash, are able to protect themselves. The Beni Sakhr regard themselves as overlords of the half-nomadic Belqāwīyeh tribes. It is noted elsewhere that farther south they own corn lands in the most fertile parts of the plateau, tilled for them by cultivators not of their tribe (see p. 634).

Dwellings.—The houses of the fellahin usually consist of one or two small rooms built of hewn stones selected from among the ruins of ancient buildings. The roof is formed of oak branches plastered over with white clay, renewed every year. A yard added for cattle, goats, and sheep completes the premises. A sheikh's house with all its dependencies will be entirely enclosed in a large yard surrounded by a wall perhaps 6 ft. high, and entered by a heavy gate, barred at night. The dwelling will here have additional rooms for guests, while each wife will have her own room. There is a large chamber for entertaining travellers (*manzil*), one half covered with mats and carpets. Often semicircular additions project from the side of the house; these have raised floors and temporary roofs of branches, and are occupied in hot weather. In the middle of the court there will usually be a cistern.

A house described by Oliphant at Kefr Asad had a circular enclosing yard with a high wall, round which were disposed the dwelling of the owner, a cattle-shed, a donkey-pen, and a large oven-building with domed roof and hole for fire in the floor: such a *nugrah*, or depression, is the normal place for the fire in any room, the smoke escaping as best it may. Mortar is not always used in construction, but the stone of the country is a crumbling limestone which can be readily burned for lime.

In Circassian villages the house is of better construction, though generally in like manner built with hewn stones taken from ruins; the village of W. es-Sir has been described as built of brick-like slabs of dried earth, whitewashed. Each house is a unit, with its own yard, and all are regularly aligned to form village streets.

CHAPTER XIX

SOUTHERN BELQA AND ARDH EL-KERAK

AREA.

For the area of this territory see Chap. XVII, p. 557.

PHYSICAL FEATURES

Relief

The country between W. Hesbān and Seil el-Hesa is an open and high plateau with a crest-line running parallel to the Dead Sea, to which the ground falls some 5,000 ft. in an average distance of 7–8 miles, generally entering the water abruptly and having little shore except at the northern and southern ends of the sea. The eastward slope to the Hamād is, on the contrary, gradual, amounting to no more than a few hundred feet over a distance three or four times as great. The plateau is saddle-like, lowest in the middle, and sloping gently from both N. and S. towards Seil el-Mōjib, the chief among the watercourses by which it is drained. The surface is remarkably even, with only slight inclines or undulations, and but few hills larger than mounds rising above it ; among these the most conspicuous is J. Shihān, 5 m. S. of Wādi Mōjib, from the summit of which extensive views open in all directions. Though this evenness, and a general absence of stones render travelling on the high ground for the most part easy, communication is delayed by the fact that the greater watercourses, running in a westerly direction, cut the direct road up the country at right angles ; the valley of Mōjib is some 3 miles across from edge to edge, and about 2,000 ft. deep, that of W. el-Wāleh presents an obstacle only less formidable, so that several hours are lost in long descents and climbs on the way between Kerak and

Mādeba. The Hajj road in the extreme east avoids these gorges, crossing the wādīs or their upper branches much nearer their heads; but it is too remote for general traffic, and since the building of the railway, has lost importance even as a pilgrims' route to Mecca. As a result of this transverse course of the large wādīs, the country falls into well-marked subdivisions between their valleys; between W. Mōjib and W. el-Wāleh lies El-Kūrah, between W. el-Wāleh and W. Zerqa Mā'in, El-Jibāl, both forming parts of the Belqa.

The crest-line of the plateau is often little more than the edge of an escarpment, but rises to the following distinct summits from N. to S.:

El-'Āl (alt. 3,050 ft.) a few miles NNE. of Hesbān; El-Maslūbīyeh (alt. 2,820 ft.), N. of Mā'in; J. 'Atārūs (alt. 2,509 ft.) in El-Jibāl; J. es-Saharīj, J. es-Sarfah, J. el-'Arābi, and J. el-Qarein between W. Mōjib and W. Kerak; Qenān Abu Jidyān and J. 'Okbor (alt. 3,805 ft.) near Kerak; El-Meiseh (alt. 4,068 ft.), immediately E. of Kefrabbeh, the highest point between J. 'Ajlūn and Seil el-Hesa; Hadd edh-Dhibeh and J. Dubāb (alt. 3,230 ft.) just N. of Seil el-Hesa.

The geological foundation of the whole area is Cenomanian ('Nubian') sandstone, which, wherever exposed, is mostly of a rich red, but sometimes striated with purple and yellow. Upon this are superposed two limestone formations. The lower, known as Cenomanian and Turonian, is greyer in colour, containing marl, and, in its upper part, scattered nodules of flint; the upper, known as Senonian, is of paler colour, with flint in regular seams. The sandstone remains exposed for an average of a mile or so inland from the Dead Sea, and thus forms the cliffs of the eastern shore; but along the larger wādīs it is visible for a greater distance; in the Seil el-Hesa it is found 10 miles up; in the W. of Kerak, 7 miles; in the lower W. Mōjib it runs continuously for 10 miles; in Seil Heidān (Lower Wāleh) for 5 miles, and in Zerqa Mā'in rather more. North of the latter wādi its general extension inland, independently of the valleys, increases to nearly five miles. Between Seil el-Hesa and Kerak the Cenomanian limestone

extends eastward practically to the escarpment. Between Kerak and W. Mōjib it forms only a narrow zone, broadening N. of that wādi, until beyond W. Zerqa Mā'in it again approaches the crest of the plateau. Up the great wādis this formation is exposed for many miles; in the Mōjib valley it spreads far to E. of the Kerak-Mādeba road, in W. el-Wāleh, up to the road crossing. The Senonian, covering the whole plateau and spreading east to the desert, is the predominant formation and that with which the traveller is chiefly concerned; it disintegrates into a very fertile soil, but is trodden into firm tracks, which, however, are slippery in the rainy season. The only other rocks calling for mention are sporadic, and peculiar to small areas. A volcanic stone, mimosite or basaltite, practically indistinguishable from true basalt, but of the Cretaceous period, is found about Dhāt Rās north of Seil el-Hesa, and in the middle course of that wādi; in smaller patches near Kerak and in W. Kerak; on J. Shihān, and not far N. of this hill, on the southern edge of the Mōjib gorge, where the road crosses; in the lower courses of W. Mōjib, Seil Heidān and Zerqa Mā'in, and west of Mekāwar and Mā'in. There is some Pre-Cambrian and Cambrian rock N. of the lower course of Seil el-Hesa. Diluvial rock and alluvium are found on the lower levels. The bare peninsula of Lisān (see below, p. 616 f.), which is diluvial, is composed of marl and gypsum, but the narrow beaches and shores N. and S. of it are alluvial soil, as are the fertile Ghōr el-Mezra' and Ghōr el-Meseitbeh which lie between it and the eastern hills.

The uniform character of the high plateau renders minute description unnecessary. It presents great stretches of rolling or gently sloping ground which include some of the finest wheat-growing areas in the whole country (see below, p. 630). In spring pasture is abundant, but there is an almost total absence of trees, and the aspect of the land in many parts has suggested comparisons with high chalk downs in Europe. The broken country of the western slope is for the most part summarily described below in connexion with the wādis which intersect it, watercourse and intervening ridge here rapidly

alternating, and, as the zone of exposed sandstone near the sea is entered, becoming more and more difficult to cross. But there are parts of this slope which deserve special mention. When the hills rise by terraces, and the upper course of a wādi turns along one of these, there is formed a small plain or upland valley where cultivation is profitable and rare villages occur. Such a tract is found in the upper valley of Seil en-Nimeireh, known in this part of its course as W. Jedeireh; here the villages of Khanzīreh, 'Arāq and Tar'in enjoy the advantages of a good soil with abundant water for irrigation, while the more important village of Kefrabbeh occupies a somewhat similar position in the valley of Seil 'Esāl, across the next ridge to the north. All lie on or near the southern route connecting Es-Sāfiyeh, at the S. end of the Dead Sea, with Kerak. Terrace ground of a similar kind is found on the slopes between Kerak and the lower Mōjib, though here there are no settlements through the absence of frequented tracks traversing the region. North of W. Mōjib, hills push out from the plateau in a NE.-SW. direction, and there is no room even for small plains: here the projecting western end of El-Jibāl divides the whole western slope into two unequal halves. This ridge forms the watershed between Seil Heidān on the south and W. Zerqa Mā'in on the north, watercourses running from all its sides except the eastern. It slopes from J. 'Atārūs on the edge of the plateau past Khirbet el-Mekāwar (the ruins of Herod's Machaerus) with its citadel-hill of El-Meshneqeh; its southern sides towards Seil Heidān have cultivable valleys and, a rarer feature in Moab, occasional woods (see below). Below Mekāwar to the W. the marshy plain of Ez-Zāra along the shore contains the famous hot springs of the same name; and much of the ground leading down to them, like that not far away along the south bank of W. ez-Zerqa, is of volcanic rock and lava. (Cf. above, p. 614.) A track connects the shore at Ez-Zāra, one of the few points between the head of the sea and Līsan bay where boats can land, with the plateau in the neighbourhood of Libb.

The section farther north between the lower Zerqa and W. 'Ayūn Mūsa is not very well known ; but before the latter wādi is reached, the Dead Sea has been left behind, and the western slope has reassumed importance. For with the abutment of the hills on the Jordan valley, instead of on the shore, their valleys receive the thoroughfares which at all periods of history have linked Palestine with Moab. By W. 'Ayūn Mūsa and W. Hesbān run the tracks connecting Jerusalem with the eastern plateau. That to Mādeba passes on the right of the mamelon of En-Neba (Nebo, alt. 2,643 ft.) from which a ridge runs west to J. Seyāgha, a bold scarp'd headland jutting out between W. Jedeid (Heri, Ghuweir) and W. 'Ayūn Mūsa, and falling in terraces to the Jordan valley 3,000 ft. below. This hilly country SE. of Jordan consists of rocky valleys separated by bare limestone ridges, cultivation, on the higher ground, not appearing until the plateau is approached ; the slopes, however, are covered with grass in spring.

Coast

The shore of the Dead Sea between the north end and W. Zerqa Mā'in is not now continuously passable, though in 1874 pack-animals could be taken the whole way, if with difficulty and by circuitous tracks. The sandstone cliffs rise steeply, and are broken by small watercourses, in the valleys of which palm-trees cluster. Here and there it is still possible to walk for some distance, as near W. Umm Qaleib (2 m. south of W. 'Anāzeh), where the hills recede from the water's edge. In the middle region, between W. Zerqa Mā'in and W. Mōjib, it is possible to land at the above-mentioned plain of Ez-Zāra. Beyond this point, both N. and S. of W. Mōjib, the cliffs are inaccessible until the northern bay enclosed by the Lisān peninsula is reached. Here begins the first of the alluvial beaches (ghōrs), known from the wādi crossing it as Ghōr el-Hadīthch ; here is the small creek El-Mīneh serving as the 'port' for shipment to Jerusalem of grain from Kerak. Somewhat to the SE. of this spot are a few rude huts, built

from the ruins on the neighbouring *tell*, for the storage of the grain; this appears to be the place called by Musil El-Bele-di-yeh, though in his account mention is also made of a ruined tower and enclosure. Various brooks seem to run across the Ghôr at the corner of the bay. An old track from Er-Rabbeh, the Darb el-Mezarâb, comes down into this Ghôr along J. Qarein, Qenân Qadeib and Umm Kiteh. South of the bay, the Ghôr el-Mezra' extends some distance inland, a fertile tract cultivated by Ghawârneh Arabs, chiefly for grain (see p. 634). The Ghôrs along the coast from Lisân southward (El-Meseitbeh, El-Megheisel, Ez-Zeheir) form a continuous belt between the peninsula and Es-Sâfiyeh; their characteristic vegetation being cane-brakes, acacias, &c. The projecting end of the Lisân peninsula expands to a long plateau of indurated marl and gypsum, absolutely bare, and conspicuously white in sunlight when seen from higher ground. The surface, which rises from N. to S., is cut in every direction by ravines with perpendicular sides, so that it can only be crossed with difficulty. On the seaward side this Lisân plateau forms a line of abrupt cliff 400–500 ft. high, weathered into deep furrows, and eaten into caves at the base. On the landward side it rises as an almost vertical wall, 50–65 ft. high from a depression parallel with its axis, called Ardh el-Ketât. It can, however, be ascended about the middle, where the Roman road from Edh-Dhrâ' crossed to the sea at the now submerged cairn, Rujm el-Meqeita', marking the old ford to the western shore, disused since about 1835. About the middle of the peninsula, on a small hill surrounded by ravines, are the ruins of an ancient walled building. The hammer-head shape of the south-western point of Lisân, still reproduced on many maps, has been inaccurate for more than half a century. The correct form, a plain tongue of land, was correctly mapped by Vignes as long ago as 1864.

Watercourses

The prevalent direction of the watercourses in this region is westerly, their affluents coming down from N. and S.

The shorter rise under the crest of the plateau, and reach the Dead Sea by a direct course. But the larger rise beyond the Hejaz railway on the hills forming the watershed between the Dead Sea and W. Sirhān and extending from Jebel Hajānajeim in the S., through J. esh-Shefa, to J. el-Mashqal in the N.; these wādis thus cut their way across the whole breadth of the plateau, and as its main slope is against them, the valleys which they form are of exceptional depth.

These larger watercourses rising in the interior E. of the plateau-crest, may now first be described, and afterwards the lesser wādis which begin under the escarpment.

Seil el-Mōjib, commonly known as Wādi Mōjib, the great watercourse of the country E. of the Dead Sea, rises on the slope of Jebel el-Hafreh, NW. of J. el-Hajānajeim some 55 m. as the crow flies SSE. of its mouth. Known at first as Ghadīr es-Sultān and Wādi es-Sultāni, it receives as chief tributaries, on the l. bank, Ghadīr el-Abyadh (W. esh-Shermeh), a long but non-perennial watercourse with several branches (W. es-Suqūri, W. 'Useimer &c.) rising NE. of Dhāt-Rās; and on the r. bank, various long non-perennial affluents, the largest of which is W. el-Musheish. Traversing broken limestone hills, it receives on the l., some 30 miles from its head, W. edh-Dheiqeh, rising to SW. near Jafar, and successively known as W. el-Mezebbel, W. el-Ghuweir, W. es-Seir and W. el-Hanakein, in which last section it has perennial water. From the junction with W. ed-Dheiqeh onwards, the main wādi receives the name of Seil el-Mukheires, changed even before the confluence with W. es-Sefei to that of Seil el-Mōjib. A couple of miles from the junction it receives on the l. a brook from the great springs of Lejjūn, and from this point is a perennial stream. In this section of its course it is crossed by the Qatrāneh—Kerak road; the ford, perhaps now bridged, had long been an important one, used by those caravans from the north which preferred the easier easterly course along the Hajj road, where the wādis are shallow, to the direct route across the great gorges of the Wāleh and Lower Mōjib. N.

of Lejjūn, Seil el-Mukheires can only be crossed in one or two places, and is elsewhere impassable, flowing in a deep gorge through plateau-country and serving as a dividing line between fertile land on the W. and the barren on the E. On the desert side it receives only one large tributary, W. et-Tarfā-wiyāt, which rises far to the SE. under J. Maghār on the interior watershed, and after being known under various names, crosses the railway and Hajj road at Qatrāneh as W. el-Mudheiqeh. On the l. bank it has several non-perennial tributaries, and two with running water in their lower courses : W. el-Ghuweiteh coming in SSE. of the ford below 'Arā'er after a parallel course of some miles, and Seil esh-Shuqeifāt, running again parallel, a short distance to W. Between these two, a larger and more important tributary, Seil es-Sfei, comes in on the r. bank, where Mōjib makes its great bend westward towards the Dead Sea. Seil es-Sefei rises far to E. on the interior watershed as W. et-Tewei, under which name it crosses the railway. It is joined on the r. by the (dry) watercourse W. Abu Halūfeh, runs through the ridge of Dalmāt, and receives on the r. W. el-Kharazeh, and is known as W. Sa'ideh. Running W. under rocky sides more than 300 ft. high, it falls in the next 4-5 miles about 600 ft. Only at this point does it become perennial, receiving a brook from 'Ain Sa'ideh, and flowing NW. to the confluence with Mōjib through an inaccessible gorge, the sides of which are on the north side about 650 ft. high, on the S. about 100 ft. less. Seil el-Mōjib, now running W. about 2,000 ft. below the plateau, passes the crest-line in about 5 miles, receiving short tributaries on both sides, many carrying water, but none of importance except W. el-Wāleh. The gorge soon narrows, and the cliffs 5-6 m. W. of the road are described as rising to a great height. Here the wādi can be passed by way of the tributary W. es-Sideir on the S. bank, and of Naqb el-Masammāt on the northern ; though the track is steep and rough on the north side, the crossing is less tedious than at the ford on the main road. The river cuts its way through sandstone cliffs into the Dead Sea about 2 miles below the junction of W. el-Wāleh on the N. bank ; the

narrow outlet of 40–50 yds., Bāb el-Mōjib, has been described as a breach or rift rather than a valley. The sea at present enters the mouth of the rocky defile, though as recently as 1874 a delta was still uncovered in advance of the cliffs ; the water at the entrance is shallow. It would appear that even in mid-winter small boats can only go as far as the first bend ; in the spring, when there appears to be more water, it might be possible for them to penetrate further, though to little purpose, the sides being inaccessible. But the Mōjib could never be a navigable stream even for small craft, since in the 13 miles or so between the Kerak-Mādeba road and the sea it falls no less than 1,600 ft.

Seil Heidān, the chief affluent of the Mōjib, best known as W. el-Wāleh from its name where the Mādeba-Kerak road crosses it, rises on the interior watershed far to the E. under J. esh-Shefa. It is at first called W. el-Hammām, under which name it crosses the Hajj road and Hejaz railway near Qal'at edh-Dhaba' : soon after the crossing, it receives large but dry tributaries from NE. and N., rising SE. of 'Ammān. About 8 miles west of the railway, it is known as W. eth-Thamād, where it has a number of springs and much underground water extending for some five miles and the bed is now deep, with steep sides. The next section is called W. er-Rameil, the name Wāleh being given only after the junction of W. el-Butm on the l. bank, 5 m. E. of the Mādeba-Kerak road. W. Wāleh becomes perennial about $1\frac{1}{2}$ m. E. of this road ; on the l. bank it here receives tributaries from the S. fringe of the Kūrah plateau. West of the road, where it runs in a valley of great depth it soon turns SW., and is for a time known as Seil el-Hammām. S. of Jebel Jerwān on the r. bank, it takes the final name of Seil Heidān, and here the sides are largely composed of volcanic rock. The slopes on the r. bank now become again accessible, and along affluents on this side, W. er-Rumeimīn and W. 'Ain 'Arūs, there are fertile valleys : the slopes on the l. bank are shorter and steeper.

W. *Zerqa Mā'in* rises SE. of Hesbān, and is soon known as

W. el-Habīs, running under that name almost S. for 13 miles. It then turns W. not far N. of Libb, making a great loop to the spring 'Ain ez-Zerqa, 3 m. SSW. of Mā'in. It is now perennial, and agains turn S. for 3-4 m., with the name Zerqa Mā'in, running in an impassable ravine ; a final westerly bend takes it down to the Dead Sea through a deep but more open gorge of sandstone and volcanic rock : in this section there are many springs, including the well-known hot springs Hammām ez-Zerqa, about 3 m. from the sea. It issues into the Dead Sea through a cleft in the dark sandstone not more than 25 yds. across, the cliffs rising for some 300 ft. on either side. The rapid stream, still warm from the hot springs, runs out through boulders and vegetation to a small beach of gravel, sand and rock, on which are scattered tamarrisks, willows and reeds. In 1874 Kersten came down the r. bank, from the springs to the shore in 3 hrs., the track being evidently difficult.

W. *el-Kerak* rises in the fertile tract of Khōr el-Mezār near Jafar, 9-10 miles due S. of Kerak town. In its upper course it is known as W. es-Senīneh and W. el-Hanīsh ; under the latter name it deepens its channel, running through banks 150 ft. high. From 'Ain Jahra, NE. of Kefrabbeh, it is called W. el-Bawāb ; here, from El-Meiseh and the ridge running N. of that hill, it receives several affluents, after the junction of which it is perennial, much of its water coming from the large spring, 'Ain el-Franj, at the SW. foot of the hill on which the town stands. It is here known as Seil el-Medābegh : the right bank is about 330 ft. high, the left only half that height, rising to a small plateau dominated by Qenān Abu Jidyān. At the NW. corner of Kerak it is joined on the r. by W. el-Māliheh. This deep watercourse comes round from the north and east sides of the hill from a point far to the SSE., near Middīn. It is first known as W. Sadūr el-Maghār, W. Hawīyeh and W. el-Biyār, receiving on the r. bank W. el-Bunduqānīyeh and on the l. bank W. es-Sitt, the latter known in its upper course as W. el-Mesāteb and W. et-Tewei. After the junction of W. es-Sitt, it for a short

time bears the name of W. Jawād, but before the confluence with Seil el-Medābegh receives its final name of El-Māliheh : in this lowest part of its course it is joined by the deep W. es-Saqreh from the N. Beyond the confluence with W. el-Māliheh, the Kerak wādi, now called W. ed-Defāli, broadens out, the fertile slope Qubbet 'Abd es-Seyyid, extending on the r. bank as far as Seil edh-Dhuweihek, which brings down a perennial brook : between the town and this point it has run first W., then NNW. latterly assuming the fresh name of W. es-Sebsabīyeh ; there are here springs both on the r. and the l. banks. From Seil edh-Dhuweihek the wādi, now called Seil es-Sāddeh and Seil el-Qādhi, passes into an inaccessible gorge between Qenān Qadeib and Umm Kiteh on the r., and the ridges of Sarj Abu Halāq and El-Kharri on the l. It runs thus for about $4\frac{1}{2}$ m., the sides of the gorge clearly showing the superposition of the limestone on the sandstone, and finally issues through sandstone rocks in the alluvial ground of El-Mezra' (see above, p. 617). Here it is known as Seil el-Buksāseh, and receives on the l. the perennial Seil edh-Dhrā' which has run almost parallel with it for some $5\frac{1}{2}$ miles on the S. side of Sarj Abu Halāq.

The following are the more important of the lesser wādis, beginning with those issuing from the hills near the head of the Dead Sea, to the S. of W. Kefrein.

W. el-Jorfeh runs SW. into the lower Jordan, after a short course beginning W. of Tell el-Matābeh ; it crosses the Ghōr between shallow banks, having on the N. side Tell Ghassūl, a small hill with a few dilapidated houses.

W. 'Ayūn Mūsa, called after the springs of the same name (see p. 628), below which it is perennial, runs at first in a narrow valley with high ground on both sides, especially to N., and with occasional trees and patches of cultivation in the broader parts of its valley. Where it leaves the hills and crosses the Ghōr, it is in many parts so densely filled with scrub as to be almost impassable, but here and there, in spite of broken banks some 30 ft. high, it can be crossed by cavalry. W. Jedeid, called, near its mouth W. Ghuweir, and in its middle

course W. el-Heri, runs to N. of the ridge which culminates eastward in the commanding hill El-Maslūbiyeh; it enters the Dead Sea just N. of 'Ain Suweimeh, the bed being here about 300 yds. broad, with steep banks difficult to cross. South of El-Maslūbiyeh ridge is W. 'Anāzeh or W. Meshabbeh, also called, in its upper course, W. 'Ayūn edh-Dhīb, which reaches the sea about 7 m. N. of W. Zerqa Mā'in. Rising NW. of Mā'in, it is not at first perennial, but is described as having permanent water for two or three miles below the spring 'Ain edh-Dhīb; this wādi is also styled W. Ghuweir by some authorities in its lower course. Between this point and the mouth of W. Zerqa Mā'in are several small wādis the names of which do not appear to be finally determined. South of W. Zerqa, descending the slopes of El-Jibāl, are other lesser wādis; they include Seil Saqārah and Seil 'Atūn, which bound the small maritime plain of Ez-Zāra (see p.615), and Seil edh-Dhabiyeh, the last of any consequence before W. Mōjib.

A few miles south of W. Mōjib, Seil esh-Sheqeiq, brings down a strong brook from 'Ain Merenāyim, 4-5 miles away. The upper branches of Seil el-Fawwār, W. el-Yārūth and Seil el-Jubeibeh, rise NW. of Rabbeh, near Teidūn; after their junction at 'Ain Jubeibeh, the now perennial stream is called Seil el-Minqa'ah, receiving the name El-Fawwār at the gorge through which it enters Ghōr el-Hadītheh. The valley of the next wādi, Seil el-Hadītheh, lies beyond the ridge of J. el-Mehājein. It is formed as W. Beni Hammād by the confluence, below the plateau west of Dimneh, of three watercourses rising further S. not far from Rabbeh: W. el-Baghl, W. el-Maqāsed and Seil el-Megheisel, the two latter carrying brooks; it is perennial from the confluence to the sea. As Wādi Beni Hammād, it flows in a deep bed with very high sides, a narrow cultivated strip of land extending about 2 miles to the junction of Seil el-'Arābi on the l. bank. Lower down, on the S. side, is a hot spring, 'Umm Qal'ah, possibly still choked, as it was in 1898. The brook is now broader and, some 3 m. from the junction of Seil el-'Arābi, a better hot

spring, Hammām Ibn Hammād flows from the rock on the l. bank (Temp. 116° F.). Below the spring the valley narrows to a gorge traversing the sandstone, and in winter impassable through flood water. After issuing from the cliffs, the wādi crosses the Ghōr el-Hadītheh, to the SE. corner of the Lisān Bay, the brook still running in a deep bed; near its mouth is the little creek, El-Mīneh to which reference has above been made (p. 616). The two principal watercourses S. of the wādi of Kerak are Seil 'Esāl and Seil en-Nimeireh. The former, of which the general course is NNW., runs S. of the watershed formed by Umm Kiteh, Qenān Qadeib, and J. el-Qarein. It begins from small dry watercourses rising in the high ground further E. along the plateau: in the lower valley of one of these stands the important village of Kefrabbēh. The wādi of Kefrabbēh passes into the perennial W. Ghazwān, which runs in a deep gorge almost north. This stream is known below the hamlet of Jūza as W. el-Jindi, ultimately receiving the name of 'Esāl. Before cutting its way through the coastal hills, it runs between high ground Ardh el-Qaisāriyeh on the l., behind which rises J. el-Māliheh, and the ridges on the r., Darajet el-Hamra and J. el-Qarein, which separate it from the basin of Wādi el-Kerak. Its tributaries on this side are all short and without perennial water; between two of them, on the slope below Darajet el-Hamra, is an oasis about the spring 'Ain Wāleh. Seil 'Esāl comes out of a sandstone gorge into the comparatively broad alluvial ground of Ghōr el-Megheisel and Ghōr el-Meseitbeh, here covered with acacia trees and reeds: at this point it is crossed by the track from Es-Sāfiyeh to Kerak. Seil en-Nimeireh begins NE. of J. Dhubāb with two upper branches, W. edh-Dhaba' and W. el-Beidha, running NNW. and uniting above the village of 'Arāq under the plateau. The stream is now perennial, and flows W. to WNW., receiving from the south, W. el-Fār, which has running water brought down by Seil Ghurāb, (W. Sideir, W. el-'Ain), and W. el-Khā'ineh, rising below J. Meleih, and carrying water from 'Ain Sarāqa at the village

of Khanzīreh. Below the junction of W. el-Fār, Seil en-Nimeireh is known as W. el-Jedeireh, and henceforth receives only dry watercourses. Its final name is given to it where it cuts through the hills above the coast. It here issues through a considerable gorge in the sandstone, and reaches the sea through the narrow Ghōr ez-Zeheir, marshy ground, thickly grown with tamarisks, oleanders, and other bushes.

Springs and Wells

On the plateau, and eastwards towards the desert, this district is poor in water; comparatively few wādīs have perennial brooks, and where this is the case they often run in such deep ravines as to be for the most part useless to cultivator or traveller. Springs, wells and water-holes occur here only at rare intervals. Along the east of the plateau the following are watering-places for camels. W. eth-Thamad, an upper section of Seil Heidān (W. el-Wāleh), 9–10 m. ESE. of Libb, and some 6 m. west of the Hejaz railway at Qal'at Dhaba': the bed of the wādi has abundant ground water over a distance of 3–4 miles, for which it is only necessary to dig holes 1–2 ft. deep. Hafā'ir el-Hanakein, abundant water-holes in Wādi Hanakein (a section of W. edh-Dheiqeh, a tributary of Seil Mukheires), are 10–12 m. SW. of Qatrāneh. Lejjūn, copious springs forming a pool and brook, rise on the foot of the hill of El-Fityān near the Roman camp of Lejjūn, 10 m. W. of Qatrāneh, and not far from the Qatrāneh–Kerak road. In the South, Bir en-Nā'im (alt. 3,140 ft.) lies about 11 m. E. by S. of Middīn, 8 m. W. of the Hejaz railway at its nearest point, and some 12 m., as the crow flies, from the station of Qatrāneh; it is on the E. side of the ridge Abu Rakbeh, and is said to yield a good supply. Another well, Bir Bashbash, lies $2\frac{1}{2}$ m. west.

In the wādi close SE. of Middīn there is a frequented spring lying not far E. of the road. On the plateau, the ancient cisterns and reservoirs are still used, though where these are open, the water is generally allowed to get foul. Should these sources of supply fail, recourse must be had to

springs west of the plateau-crest, often at a considerable distance. Thus the people of Mādeba will fetch water at need from 'Ain Jedeid (see below, p. 628), distant 4-5 miles, or even from 'Ayūn Mūsa, a couple of miles farther to the north.

West of the plateau, water is far more abundant. As above noted, a large proportion of the wādis running to the Ghōr and Dead Sea are perennial, though in their lower middle courses, where they cut deeply through the hills, their ravines are often inaccessible. From Es-Sāfiyeh to the Lisān, and again N. of Mezra', they run out across a narrow alluvial shore and are used for irrigation; thus the traveller along the coast has never far to go without a supply. In the upper basins of these wādis, not far W. of the plateau-crest, springs and streams are numerous. Thus the upland basins of Seil Nimeireh and Seil 'Esāl have abundance of good water both for drinking and for irrigation. To the N. of them, the upper branches of W. el-Kerak have never-failing sources with copious springs quite close to the town. Again further N., Seil el-Megheisel and W. el-Maqāsed (upper branches of W. Beni Hammād or Seil el-Hadītheh) have springs ('Ayūn Abu Sa'id and others) about 2 m. W. and NW. of Rabbeh. Lower down W. Beni Hammād is the hot spring, Hammām Ibn Hammād (alt. 147 ft.), on the l. bank, about 4 m. from the sea; it flows with some force from the rock, with a temperature of about 100° F. and is used by Arab bathers. Among other sources S. of Mōjib mention need only be made of 'Ain el-Bedīyeh above the S. bank of that wādi almost opposite the ford under Naqb el-Masammāt: there are four springs, watering an oasis with thick grass and trees. The tract of El-Jibāl has many perennial wādis flowing into the Dead Sea, the lower Seil Heidān and the lower Mōjib. 'Ain er-Riyyeh and Ain 'Arūs are on the fertile slopes above the r. bank of Seil Heidān near the track running S. from Mekāwar. Higher up on the same side, about 2 m. W. of the point where the Mādeba-Kerak road crosses, there is a hot spring at the mouth of the affluent, Seil ez-Zīza. More important are the hot springs, Hammām ez-Zāra, on the small coastal plain due W. of Mekāwar,

some $3\frac{1}{2}$ m. S. of the mouth of W. Zerqa Mā'in (see p. 615). The plain, which is cut into unequal parts by Seil Saqārah, is enclosed landward by an amphitheatre of sandstone and basalt, up the middle of which a track goes to Mekāwar past a ruined tower on a massive projecting rock. There are two hot springs near this ruin, one forming a brook, and several more rise along the plain, marked by reeds and cane-brake from which steam rises. The brooks which they form do not all reach the sea, but where they do, the deposits have formed small promontories at their mouths. The chief spring, El-Wāfiyeh (the copious) is some 100 yds. from the sea, and sends up a dense cloud of vapour : its temperature is given as 107° F., and it yields 55 gallons a second. In the wādi crossing the N. of the amphitheatre both hot and cold streams run ; along the former, pits are dug for Arab bathers who frequent the springs for rheumatism. The water is not unpleasant to the taste.

The hot springs of Hammām ez-Zerqa are situated 3-4 miles from the mouth of W. Zerqa Mā'in, on the r. bank ; they are approximately at an equal distance from Ez-Zāra, but are most accessible from Mekāwar. They begin W. of the expansion in the valley known as El-Buqei', ten springs succeeding each other over a stretch of about 3 miles, the water flowing from the junction of the sandstone and limestone. Highest up are the smaller springs of lower temperature, issuing from the foot of ravines in which palms flourish. The fifth spring is one of the largest. It rises at some distance above the bank amid palms and brushwood, forming a brook which rushes in a series of cascades over terraces of sulphur deposit ; its temperature is 130° F., and the stream is visible more than a mile away. The seventh and eighth springs, half a mile lower down the valley, bubble out with great force close together, but are soon overarched by sulphurous incrustations, and disappear from sight. The ninth spring is also large, but it rises at some distance above the wādi, and its waters have time to cool before they become accessible. The tenth and last is the hottest of all, with a temperature of 143° F.

At 'Ain ez-Zerqa, SSW. of Mā'in, where W. Zerqa Mā'in first becomes perennial, the water rises in abundance, forming pools in the gravelly bed of the wādi, which is bare and has very steep banks, though horses can be watered. The temperature of the water is thermal, about 89° F. Four to five miles almost due N., and about 6 m. WSW. of Mādeba, are springs in W. edh-Dhib, at the point where the perennial water begins in its valley; a group of trees marks the most easterly spring. Three miles again NNE., in W. Jedeid, 300 ft. below the large stone circle of Hadāniyeh, is 'Ain Jedeid, one of the springs to which the people of Mādeba (distant 4-5 m.) resort in cases of extreme drought. The water rises in a clear pool under some boulders at a temperature of 80° F., and is said to be abundant even in a dry autumn. About 3 m. away, a little E. of N., in Wādi 'Ayūn Mūsa, are the springs of the same name in like manner used in emergency by the people of Mādeba.

CLIMATE

For the general climatic conditions, see Chap. II, p. 24. As in other parts of the country, rain rarely falls between the beginning of May and October, but in winter and spring violent storms of rain and hail may be experienced. Upon the plateau the difference between day and night temperature may be very great in spring. At the end of February, on the edge of the Hamād near Meshatta, Tristram was tried by scorching days succeeded by nights with 6 degrees of frost. The traveller is naturally prepared for a marked contrast in atmospheric conditions between the almost tropical ghōrs of the Dead Sea and the plateau 3,000 ft. above it. But it is sometimes forgotten that on the main road, traversing the country from N. to S., contrasts almost as great, and far more sudden, are encountered at the passage of the large wādis, Seil el-Hesa, Seil el-Mōjib and W. el-Wāleh; for while the air at the top of these ravines may be fresh and cool, at the bottom of the valley it will be close and very oppressive. It should be remembered by any who may camp in the lower parts of such valleys that

during squalls on the Dead Sea furious gusts of wind may suddenly rush up the gorges, and that the positions of tents should be carefully chosen with regard to this contingency.

NATURAL RESOURCES

Minerals.—The Ghawārneh Arabs of Es-Sāfiyeh sell to travelling merchants the blocks of bitumen which float on the Dead Sea ; possibly the bituminous wells, 'Ayūn Humr, close to the shore about 2 m. S. of the mouth of W. Mōjib may serve a similar exchange. The Arabs get sulphur and gypsum on the Lisān peninsula, antimony in W. el-Keneyyiseh (Upper W. Ghuweir), W. es-Sitt, and about Humeimāt ; alum they bring from 'Ain Mūma, west of Kerak. A bituminous coal, burning with a dark red flame, and smelling of asphalt, is found in the rocks on the eastern side of Nuqrat el-Beidha, beyond the l. bank of W. el-Hanakein, not far S. of the Qatrāneh-Kerak road, and some 3 m. S. of Lejjūn : this coal is said to be used by native smiths. Salt appears to be chiefly imported from W. Sirhān ; that which is obtained from the Dead Sea is regarded as of inferior quality. Lime is burned very generally, the cretaceous rock of which the country is formed lending itself readily to this purpose.

Flora.—Though there are no forests in the district, and the high plateau is now almost bare, there are scattered trees in many parts of the western slope, both in the wādīs and on higher ground ; patches of woodland are occasionally found. On the low hot ground along the Dead Sea, the date-palm, the acacia, the Euphrates poplar, the plane, the false sycamore and wild fig are frequent, accompanied by such semi-tropical shrubs as grow at a similar level in the Jordan valley. On hill-sides and higher ground the plane, oak and terebinth are found. The two latter trees occur in some numbers in the country west of J. Shihān, north of the lower Seil Heidān, and about Mekāwer and 'Atārūs : the valley of W. er-Rumeimīn, running S. into Seil Heidān from below Mekāwer, is described as wooded on both sides, while trees also cover the western slope of J. Jerwān on its l. bank. The fig and wild almond also

flourish on the higher ground. Whenever the wādis have permanent water they are lined with oleanders which often almost attain the proportion of trees.

Fauna.—The wild animals of the district likely to be useful to the traveller include the ibex, found among the rocky gorges along the Dead Sea, and the gazelle, alike in the low country and on the high plateau ; both supply good venison. The boar chiefly haunts the cane-brakes of the watercourses ; the flesh is good, though not eaten by the people of the country. Among birds, the partridge is ubiquitous in the higher lands, while in the western valleys but more especially in the ghōrs by the Dead Sea, turtle-doves and pigeons abound. Fish swarm in the perennial watercourses, as in Zerqa Mā'in, or in Seil ed-Dhrā', where it is crossed by the Sāfiyeh-Kerak road. The species most often mentioned is *Scaphiodon Capoëta*, a chub-like variety.

INDUSTRIES AND TRADE

Cultivation.—The plateau contains some of the best corn lands in Syria, which cover wide areas. Agriculture extends from near the crest-line to points at irregular distances from the desert ; from N. to S. continuity is broken by the valleys of the great transverse wādis. Cultivation at present crosses the Hejaz railway only in the northern part of the Mādeba area ; in the southern part the interval between the wheatfields and the desert is six miles ; in El-Kūrah it is about eight. South of El-Kūrah towards Kerak, the cultivated zone hardly extends to Seil el-Mukheires, which here forms the boundary between productive and barren ground. South of Kerak, as far as the valley of Seil el-Hesa, it is at first a rather narrow strip, broadening considerably to the S., where it stretches about 7 miles E. of Dhāt Rās, the railway here lying 10 miles beyond. The above are the large and continuous tracks ; but smaller areas are found in favourable sites on the western slope, and in the ghōrs. Such occur round Khanzīreh and Kefrabbeh, about 'Atārūs, and in many valleys, where good soil covers gentle inclines, or flat expanses along the wādis. The hot

ghōrs produce cereals of all kinds ; the Mezra', broader than the rest, rivals Es-Sāfiyeh for its grain. Work in the grain-fields is largely carried out by imported labourers from Hebron, Jerusalem, and Nāblus. For good crops four rains are regarded as needful : at the end of October and beginning of November, in the middle of December, at the end of January and beginning of February, and in late March and early April. On the plateau barley ripens towards the close of May and wheat in June ; the ghōr is always a few weeks earlier. The reaped grain is carried to the threshing-floor on camels and mules, the threshing being usually done by a wooden board set on the under-side with rows of sharp flints. Upon this board the thresher stands and is driven round and round over the strewn crop by a pair of mules or a single camel. The grain is chiefly winnowed by tossing against the wind, but sieves are also used. After heavy crops, land is allowed to lie fallow, sometimes as much as three years.

As a rule, land is held communally, and re-divided every year according to the requirements and claims of the several households. Only in villages of which the people have recently purchased land from the Bedouin is private property in the soil general among fellahin ; among the half-fellahin the same conditions prevail. Much of the best land still belongs to the Bedouin, who lease it to peasants, receiving as rent a fifth, or, if the land is very good, a quarter of the produce.

Fruit trees, mainly olives and figs, are cultivated in the western valleys or in the ghōrs, where the presence of springs and brooks makes irrigation possible. Some vineyards are still to be seen beside the orchards round the upland villages of Kefrabbeh, Khanzīreh and 'Arāq, as well as near Kerak, and viticulture might become once more an important industry as it was in ancient times ; the same statement applies to tobacco, now sparsely planted in the Kefrabbeh region and about Mekāwar. Gardens growing onions, garlic and other vegetables are found in the villages.

Pasture.—Pasture being good in season both on the western part of the plateau and on the broken country sloping to the sea, cattle, goats and sheep are kept in numbers by fellahin and by the half-nomadic Arabs (see below p. 633). Horned cattle, which are chiefly used for ploughing, do well both on the high ground and the low; they are of a small race, and commonly black; the biggest beasts are those of the Ghawārneh in the ghōrs. Here green pasture lasts longer than in the higher country, with the result that the cows yield more milk and the calves are weaned later; herds are apt also to be larger than in places where grass and water are less permanent. Camels belong to the purely nomadic Arabs ranging the desert border (see below p. 634); they are driven west by their owners when grazing of a particular quality is required; thus the Beni Sakhr will take camels from the Hamād right across the plateau to the plain of Ez-Zāra on the sea-shore because the cane-brakes among the hot sulphur springs are considered to possess medicinal properties. Asses are numerous in the villages; mules are also found in some numbers, but horses are few.

Trade —There is little trade in the district. Some traffic in the ordinary necessities of life is carried on by a few shopkeepers established in the villages. Goods are also hawked by the travelling merchants (*khawāja*) who supply the Arab tribes.

INHABITANTS

Settled People.—The district has comparatively few settled inhabitants except at Kerak and Mādeba. Almost all the villages lie to the S. in Ardh el-Kerak, and mostly on the western slope. The largest are Kefrabbeh and Khanzīreh; others are 'Aineh, 'Arāq, 'Amaqeh, Jafar, Jūza, Mā'in, Mūteh and Tar'in. There is a tendency for ruined villages or sites of ancient towns to be re-occupied, the settlers finding shelter in huts built with the stones of the ruins, or in vaulted chambers which have remained intact. This appears to have been the case at Mūteh and Middīn. In other places, fellahin will occupy an old site for only part of the year, if it lies near

corn-land or good pasture. In this region, as in others, the people are in the habit of living out in tents during the harvest season.

Fowls being universally kept, eggs are commonly obtainable. Meat, where eaten, is usually mutton; only Christians and Jews as a rule eat beef. Cheese is made from the milk of goats and sheep, as well as from that of cows.

Arab Tribes.—The Arabs of the region are Ma‘āzeh (half-fellahin), not breeding camels, but asses and a few horses, with herds of goats, sheep and cattle.

In the SE. of Ardh el-Kerak are the Hejāya, 550 families (according to Musil) ranging between Seil el-Hesa and Lejjūn. The Nu‘eimāt, dispossessed of the greater part of this territory by the Hejāya, are now a small tribe of about 80 families with the Khureisheh, another small tribe of about 100 families, next them on the west.

The country W. of these tribes, bounded by Seil el-Hesa, the Dead Sea, Seil edh-Dhrā‘ and a line running ESE. past Kerak town, was formerly the territory of the El-‘Amr, now also a dispossessed and reduced tribe of about 100 families. By the beginning of the nineteenth century the El-‘Amr had fallen into the debt of the people of Kerak, who, under the capable leadership of their chief clan the Mejāliyah, gradually obtained possession of all their best land and now hold it as far S. as Dhāt-Rās, and ‘Aineh on the N. bank of Seil el-Hesa. A similar process of ejection was carried out about the middle of the century against the Hamā’ideh or Hamīdeh, once chief owners of all the land N. of Kerak. This tribe lost the country between the town of Kerak and W. Beni Hammād, with the fine agricultural land on the plateau about Rabbah, Qasr Rabbah, and Shīhān, which the Mejāliyah kept for themselves. The Kerakīyah thus own the pick of the land along the plateau for a distance of some 35 miles N. of Seil el-Hesa, their eastern borders running from J. Shīhān to Lejjūn, and thence down to Dhāt Rās and ‘Aineh. The Hamā’ideh, however, remain a large tribe of 800 families, since they still range the wide area from W. Beni Hammād to W. Zerqa

Mā'in. The Salā'iteh (*Es-Slit*), 280 families, hold the desert tract E. of Seil el-Mukheires, and the similar country across Mōjib on the far side of El-Kūrah. North of W. Zerqa Mā'in begin the Belqāwīyeh tribes, of whom the most important, in the southern Belqa, are the Ghanamāt, with 220 families. The larger of their two sub-tribes is that of the 'Ajārmeh; their country extends N. to W. Hesbān, where they meet the 'Adwān (see above, p. 609). Most of the above tribes have come from further south, pushed N. by successive waves of emigration. The Ghawārneh, or people of the *ghōr* are fairly numerous (about 180 families in Ghōr el-Mezra' alone). But they are raided by all the more warlike tribes within reach of them, and only the extraordinary fertility of their soil enables them to support the constant exactions to which they are exposed. They are of very dark complexion, as befits the inhabitants of an exceedingly hot region.

The Arabs obtain most of the objects which they do not themselves produce (utensils, clothes, shoes for horses, coffee, &c.) from the *khawāja* or travelling merchant, who sets up his conspicuous white tent in the encampment after giving the sheikh a present for the privilege of trading. Such merchants take either money for their goods, or an equivalent in kind—wool, camels' or goats' hair, livestock, grain, butter or cheese. The improvident Arab is usually in their debt, and borrows on the security of next year's crop.

The only Bedouin entering the district are the Tauqeh, a sub-tribe of the Beni Sakhr, who range up the desert along the whole of its eastern side. They own much of the fertile land on the plateau, where their sphere of influence runs from Jafar, north-west of Dhāt Rās, east of Kerak and Mādeba to the Haurān. They are overlords both of the fellahin and of the half-nomadic Arabs, and profit both by the material and moral advantages of that position. Slaves are found with all the tribes, not only negroes, but Mohammedans of other races stolen by slave-merchants as children in Egypt and Morocco, and sold chiefly at Medā'in Sālih, Ma'an and Mecca. Slaves appear to be well treated and allowed so

much freedom that they have no desire to return to the places of their birth.

Dwellings.—Permanent houses, like the more temporary dwellings above-mentioned, are commonly built of stones brought from the ruins scattered over the country. The actual habitation is preceded by a walled yard with a large stone-built oven (*tābun*) in one corner. Part of the yard is sunk below the level of the rest for the use of the cattle ; adjoining this are the stalls used in winter. In the yard of most larger houses is a cistern (*bi'r*), often kept locked, and covered by a flat stone with a hole in it, through which water is drawn. The hole is protected by a wooden cover, less to prevent ordinary defilement than to keep out locusts ; a store-room (*dukkān*) commonly opens on the yard. The windowless one-storeyed dwelling-house, forming one side, is entered through a door with a stone bench to right and left, that to right often having a small tent-roof fixed over it. The flat roof is supported on one or more stone arches carried by piers projecting inwards sometimes as much as 6–7 ft., the interspaces or bays forming compartments used for various purposes. One is always a granary ; most of the rest, of which the floors are raised 1–2 ft., serve as sleeping places. The hearth is a circular space with a clay rim, placed in the middle of the building. The roof consists of beams laid over the arches ; on these are reeds and brushwood and over all is spread a layer of clay mixed with cow-dung and ashes, renewed yearly in September. A narrow external stair gives access to the roof. This is covered by a tent-awning in summer, under which it is usual to sleep.

CHAPTER XX

EL-JIBĀL AND ESH-SHERA

(THE COUNTRY SOUTH OF SEIL EL-HESA)

THIS region, comprising the high country east of Wādi 'Arabah, is bounded on the east, for all practical purposes, by the Hejaz railway on the edge of the desert. On the south, the boundary is an arbitrary line running from the head of the Gulf of Akaba north-east to the railway, forming the frontier between Syria and the vilayet of the Hejaz. It thus includes the high plateau between Wādi 'Arabah and the desert which comprised the eastern half of the ancient Edom. Administratively it is included in the vilayet of Damascus, and the sanjaq of Kerak.

AREA

The area is for the most part a narrow plateau continuing the plateau of Moab to the south. On the west it falls rapidly by narrow steps to the 'Arabah, but northwards to Moab and eastwards to the desert there is a gradual slope. The maximum length is about a hundred and ten miles ; the average breadth between the 'Arabah and the Hejaz Railway about twenty-five. It is thus a mere strip of territory, but a part of the great land bridge connecting Damascus with the south, and possessing in Ma'ān the gateway of Arabia : from this place the railway and pilgrims' road run down to Medina and Mecca, and camel-tracks diverge to Jebel Shammār and to Nejd (see *Handbook of Arabia*, vol. ii, Routes 18 and 19).

PHYSICAL FEATURES

The crest-line of the plateau, which forms an escarpment rather than a range, is known in the northern half by the

name of El-Jibāl,¹ and in the southern by that of Esh-Shera (or (?) Esh-Sher'ah), the division between the two being marked by a gap or depression south of Shōbek : according to Burckhardt the Wādi Ghuweir (or Seil ed-Dathneh) is regarded by the Arabs as a boundary. It is chiefly along the southern half of El-Jibāl, from the gap northwards to the neighbourhood of Dhāna, that the country, viewed from the east, actually creates the impression of an open sloping plateau ; north of this point it appears as a mass of hills, south of it as a steep slope with numerous patches of green. For the greater part of its length the crest runs rather west of south ; but south of the latitude of Ma'ān, Esh-Shera bends to the south-east, and a secondary line of hills continues parallel with the 'Arabah ; in the bifurcation thus formed begins the great sandstone plain of El-Hisma, which extends far into Arabia. This country is very little known, but may acquire importance should the branch line destined to connect the Hejaz Railway with Akaba run, not from Ma'ān, but from a point much farther south, for example, from the station of El-Madawwareh (more than 80 miles ESE: of Akaba ; see *Handbook of Arabia*, vol. ii, p. 125), between which place and the sea it is reported that a survey has been made.

Successive sections along *El-Jibāl* from north to south have the following names : Jebel Sōbaleh, Qenān el-Qarn, Jebel Zōbar, Zahret 'Azāreh, Hala el-Qarān (alt. according to Musil, 1,640 m.), after which comes a line of escarpment with no conspicuous heights extending to the above-mentioned gap where El-Jibāl ends. *Esh-Shera* begins with Maghārīb el-Khōr (1,650 m.), after which follow Jebel Madeirej, Jebel Milghān, Jebel el-Haddād, Ras Ail (1,610 m.), Qareinet ez-Zeyyāt, Jebel el-Jedeid, and Jebel el-Hafeir, where the range sinks to El-Qedreyyāt, a hilly tract with scattered eminences. With Esh-Shera ends the long ridge which began at Mt. Hermon : farther south are found hill-systems of which the general trend is east and west.

To the west of the great plateau-crest are lesser hills dropping

¹ Not to be confused with El-Jibāl, farther north (Chap. XIX, p. 613).

rapidly to the 'Arabah, for which their last ridges form a rocky wall, cleft by the gorges of many wādis. Below the crest-line of El-Jibāl and parallel to it there is a series of terrace plains along which an old track runs from the Wādi el-Hesa to Homeimeh (see below, p. 641 f.); on these small but well-watered and protected plains lie the agricultural villages of El-'Aimeh and Senefheh, and the larger settlement of Tafileh (see p. 642). Under Jebel esh-Shera the terrace formation is still marked, and though it has now no inhabited places, a whole series of ruined sites shows that it once supported a considerable population. The western slopes of El-Jibāl and Jebel esh-Shera are in parts wooded: south of Shōbek, Khōr el-Hisheh has continuous woods of oak and other trees. The eastern slope towards the railway is open country broken by a few barren ridges. It becomes more desert from north to south, and towards Ma'an the surface is covered with loose black flints.

Compared with Wādi 'Arabah and the region to the west of it, this area is well watered; it is richer in water than Moab. But the country being unsurveyed, and numerous watercourses little known, there is uncertainty as to the exact course of many wādis, and even confusion of names. Those traversing the eastern slope are accurately known only where tracks cross them; and as the watercourses on this side run for the most part to the east, while the roads run north and south, knowledge extends but little beyond mere points of intersection. Of a few wādis on the west slope more information is available, since tracks to the 'Arabah follow in large part the course of several among their number. But even here there are discrepancies in the most recent maps and disagreements in nomenclature, while minutely accurate descriptions are far to seek.

Wādis

The following are the chief western watercourses from north to south:

The great Wādi el-Hesa rises in hills far to the south-east, beyond the railway at Qal'at el-Hesa; from 'Ain el-Bazī'iyeh

it is said by Musil to have perennial water ; the floor of its valley is fairly broad, with cultivable strips at the sides, though its banks are steep. Its chief southern affluents are the Seil el-Bākher, joining it not far east of the road and crossing at Naqb el-Qasabeh, the Seil el-Jā'ez entering to the west of this, and the Wādi La'bāni coming in just west of the road and crossing of Naqb el-'Akūzeh, and taking its rise almost due south near Khirbet Gharandel : this latter wādi has a broad valley with strips of cultivation, and running water in parts of its middle and lower course. The Seil el-Qasrein comes in to the west ; nearer the mouth are the Seil 'Afra and the Wādi edh-Dhabā'ah.

No other watercourse in the region is equal to the Wādi el-Hesa, of which the deep channel is only exceeded by that of the Wādi Mōjib in Moab ; it is a broad and deep natural boundary, to cross which takes the traveller some two hours.

The wādis which reach the Dead Sea either through the Ghōr, or as affluents of the Wādi el-Jeib, are but imperfectly described. The Seil Feifeh, rising to the south-east near Tafileh, whence it sometimes bears the name of Nahr Tafileh, is said to have water all the year in its lower course. Seil Khaneizir rises farther south in the same direction near Khirbet Gharandel. The smaller Seil et-Telāh, on which is the ruined site of Telāh, has a brook claimed also as perennial.

Then follows the Wādi Dākhel, up which runs an important route connecting 'Arabah with the great north and south road on the plateau. The wādi forks some miles above its mouth, and the British maps give the name Dākhel to the northern branch, that of Ghuweir to the southern ; but it would appear from German travellers (Dalman, &c.) who have ascended the valley in recent years that the name Dākhel is properly given to the southern branch by which the pilgrims from Gaza travelled to the Hajj road between Buseireh and Dhāna, and that the name Ghuweir is here misplaced. For them the real Wādi (or Seil) Ghuweir is the more southerly watercourse (sometimes called Seil ed-Dathneh), which comes down from Shōbek, and joins, at Fīnān (ancient Phunon), the

Seil Dhāna coming from near the village of Dhāna, the two together continuing in our maps as Wādi Fedān or Ifdān.

South of these two wādis may be mentioned : the Wādi Abu Khusheibeh from the south of Jebel Hārūn affords the most usual means of access to Petra, and south of this the Wādis Gharandel and Muweileh, leading to Delāghah. Again south are Wādis Turbān, Dharbeh, and Muhtedi, and then the far larger Wādi Yitm, rising a long way NNE. in Jebel esh-Shera, with the most frequented road to Ma'ān from Akaba running up a great part of its course.

The wādis which run east of El-Jibāl and Jebel esh-Shera are of small importance to the traveller. They are unknown in their lower courses, and mostly fall into the unexplored depression El-Jafar beyond the Hejaz Railway.

The wādis carrying permanent water are chiefly those running into the Dead Sea, the Ghōr and the northern 'Arabah. Continuous observation is necessary to decide whether any given wādi is perennial or not, and this is at present wanting. The wādi at Petra fed by 'Ain Mūsa has commonly been described as perennial, but Dalman has on four successive visits found it dry : from this single example it may be inferred that statements as to running water should be received with caution. It is, however, clear that the upper western slopes and terrace plains are copiously watered ; and if, in the month of August, Musil saw many waterfalls tumbling into the gorge of the Seil er-Rehāb, south of Seil 'Afra, it is almost certain that in positions even more favourable there are many streams that never cease to run.

Springs

Springs are numerous in the upper course of all the wādis and in the lower course of many ; on the east slope they are found on the high ground near the watershed, but become rare as the wādis approach the desert. A survey of the country would doubtless reveal the presence of springs and wells in very extensive distribution.

FLORA AND FAUNA

On the flatter ground there is grass after the winter rains, and at other times close to watering places. The tree of the high country is the terebinth (*Pistacia mutica*) which gives good shade and yields red berries eaten by the Arabs. Where trees occur on the west sides of El-Jibāl and Esh-Shera, the oak is found on the higher slopes, and on the lower the 'ar'ar (*Juniperus oxycadrus*) and lizāb (*Juniperus excelsa*), varieties of the juniper and of rather sombre foliage; the poplar is said to be grown at Elji (El-Ji) for the sake of its timber. The most extensive wooded tract is El-Hisheh between Shōbek and Elji, where a certain amount of timber could be obtained. The oleander grows in profusion along the course of all wādis where water generally runs. The scrub in the wādis running down to the 'Arabah probably resembles that found in the wādis to the west of that depression.

The *fauna* of the high country includes the wolf, fox, hyena, jackal, hare, wild-cat, and boar (the last two in the wooded tracts); in the rocky hills and gorges on the edge of 'Arabah the panther is found. Birds include the *haja*l, *shunnār*, pigeon, and *kata*, the latter haunting springs and wells. Bees are numerous in Esh-Shera, and the Seil el-Hesa supplies fish which are purchased in Kerak.

COMMUNICATIONS

The main lines of communication are from north to south, continuing, south of the Wādi el-Hesa, the two great roads from Damascus: the Hejaz Railway and Hajj road along the edge of the desert, and the more westerly way down the plateau, which follows the line of Roman roads. In ancient times this latter route connected Petra and Akaba with Jerash and Damascus; but Petra is a dead city and Akaba a maritime village, and until Akaba has a railway and a port the real terminus of both the great roads is Ma'ān, the entrance-gate into Arabia. In former times a third north-south track ran down the west side of the crest from

Seil 'Afra through El-'Aimeh and along the terraces by Shōbek to Delāghah and El-Beidha, joining the Roman road to Akaba at Homeimeh. This route can still be used, and is easy south of Shōbek, but under present conditions it serves only a scanty local traffic. It is said by Musil to continue farther south into El-Hisma and Iram.

The more important transverse routes connecting this region with Egypt, Sinai, and West Palestine across 'Arabah, are: the track from 'Ain Hosb in northern 'Arabah up the Wādi Dāhkel to the north-south road in the neighbourhood of Buseireh; a more southerly track from 'Ain Hosb up the Wādi Ghuweir to Shōbek; the route from 'Ain Hosb or 'Ain el-Weibeh over Naqb Namleh to Petra, for Ma'ān; and a second route from 'Ain el-Weibeh to Petra by Naqb er-Rabā'i and Wādi Khusheibeh. Minor transverse tracks run up from 'Arabah.

INHABITANTS

Settled places.—In the whole area there are only nine places with settled or half-settled inhabitants. Akaba is a maritime village with one street on the east shore of the Gulf of Akaba near its head. Its population is unlikely to exceed 1,000, and is chiefly occupied in cultivating, for a share of the produce, the palm-groves and gardens in the narrow strip of fertile land between it and the sea, which for the most part belong to Huwāt, Huweitāt and 'Imrān Bedouin. Water is found in this strip at a depth of about 3 ft., but there is a public well and cistern immediately west of the fort formerly occupied by the Turkish garrison. Ma'ān, with about 3,000 inhabitants or more, on the edge of the desert, has great gardens of peaches, apricots, figs, and pomegranates with a few palms, and corn land distant about three or four hours to the west (see further, *Handbook of Arabia*, vol. ii, p. 121). Tafileh, with a population estimated at about 9,000, is the capital of a kaza, and the principal place in El-Jibāl. Shōbek is similarly important with regard to Esh-Shera.

Smaller villages are Buseireh, El-'Aimeh, Senefheh, and Dhāna. These places have grain fields (barley, wheat, dhura) and olive groves with rich well-watered gardens of fig and other fruit trees, and vegetables. The people are fellahin, but only in part sedentary, since they live a great part of the year in tents among their fields and gardens, storing their grain in their villages to which they return when there is little agricultural work in progress. Seen from a distance the gardens about these villages appear as rich expanses of verdure. The rarity of permanent villages in a country rich in water and with a sufficiently fertile soil is due to the imperfect protection afforded by the Government.

The Bedouin, unless forcibly restrained, levy blackmail (*khuwweh*) upon all cultivators within easy reach, either annexing the best fields and compelling the peasant to cultivate them for their benefit, or appearing on the scene at harvest-time and exacting a proportion as their share. Small villages like El-'Aimeh and Senefheh owe their comparative prosperity to the fact that they lie under the plateau-crest and are protected by the steep rocky walls above them to the east. To such unstable conditions must be ascribed the occasional evacuation of villages. Sites known to have been occupied in comparatively recent times are now abandoned. Before Burckhardt's time, Umtedeh ((?) Muhtedi), a villagenorth of Buseireh, had been inhabited, but the people had migrated to the latter place; the Greek-Christian inhabitants of Bedebdeh, not far from Petra, had more recently gone northward to Kerak; while early in the nineteenth century there are said to have been settled villages in the district south of Petra. The building of the Hejaz Railway with its defended stations has encouraged agriculture all down its line in Moab; it may ultimately have a similar effect in these more southerly regions, though the cultivable soil is less conveniently accessible and there is more desert west of the line. There is a certain tendency among the Bedouin to adopt cultivation and a settled life, but rather among the breeders of goats and sheep than among owners of camels; for the

former are more closely bound to a few sites with good grazing, and so learn something of sedentary life. But tribal feuds and the nomadic temperament militate against permanent labour, and spots tilled for several years are suddenly abandoned. The boundaries of cultivation are always changing along the desert edge where wells are rare, and uncertainty of rainfall is a further cause of fluctuation.

Both in El-Jibāl and Esh-Shera the fellahin own cattle, but not in great numbers; the cows yield little milk, and are used chiefly for ploughing and threshing. Fowls are everywhere kept; the eggs are good, and the birds themselves fit for eating. Goats and sheep form considerable herds and flocks. Mules and asses are used for riding and for burden; no fellah is without an ass. Horses are not generally owned by fellahin, being expensive to keep; mules tend to take their place. Dogs are found everywhere, but are ill cared for.

Dwellings.—The tents in which the people dwell in the fields are the usual booths of goat-hair cloth; their houses are the low rectangular stone huts with courts met with elsewhere. In settlements on or near ruined sites (e.g. Buseireh) the fellah adapts an old house to his needs, or uses its stones to build a new one.

Arab Tribes.—The chief Bedouin of this region are, from north to south: the Hejāya, to east of a line running from Kerak to Buseireh; Liyātineh, about Wādi Mūsa; and Huweitāt, south of this point as far as Akaba. The Sa'īdiyīn, from beyond 'Arabah, penetrate the hills south of Jebel Hārūn. The Beni Sakhr range the desert east of the Hejaz Railway from the Jafar depression northwards. See further, Tribes of Kerek and Shōbek, *Handbook of Arabia*, vol. i, p. 405.

CHAPTER XXI

THE GHŌR (JORDAN AND DEAD SEA) ; AND WĀDI 'ARABAH

THE GHŌR (R. JORDAN AND DEAD SEA).

THE Ghŏr is a section of the great depression or rift which begins in northern Syria at the base of the Anti-Taurus range and is continued southwards through the Dead Sea and Wādi 'Arabah to the Gulf of Akaba. This rift was produced, not by the slow erosive action of water, but by a sudden movement of the earth's crust ; its floor is a long narrow strip of that crust, dropped thousands of feet below the level of the plateaux on either side (Huntington). Though it falls 2,372 ft. in about 104 miles, it has no precipitous breaks, but may be regarded as a long incline with gradients of varying severity. The steepest incline is between Lakes Hūleh and Tiberias, and the most gradual in the section S. of Ed-Dāmieh.

The surface-composition of the valley-floor varies in the different sections. In the north, from the district of Bāniyās to about 3 miles S. of L. Hūleh, it is principally alluvium. Then follows a volcanic gorge extending to L. Tiberias, where the stream is an almost continuous cascade and quite impassable. The whole valley S. of L. Tiberias is diluvium, predominantly marl. In this formation, from a point about 3 miles N. of the Beisān plain, the river works its way deep down, forming an inner valley, 'a trench within a trench,' the floor of which it has covered with alluvial soil : this inner valley bears the name of the *Zōr*, to distinguish it from the greater valley in which it is cut, known henceforward as the *Ghŏr*. The *Zōr*, about the lower middle Jordan, attains

a depth of some 150 ft. ; its breadth is rarely less than a mile and never more than two miles. The flat expanses along the stream are covered with vegetation often of tropical rankness, while the water is frequently overhung with willows and tamarisks, or bordered with reeds and canes. The high sides of marl rising on either hand are in their upper part bare, and abut boldly upon the Zōr. Their summits are broken in irregular lines, and eroded into cones of the same kind as those found upon the surface of the Ghōr, to which they are transitional : the upper edge of the Zōr has indeed been described as the bluff-end of the Ghōr, which, by the excavation of the lower or contained valley, has become the higher of two terraces. Large parts of the Ghōr surface, especially along the edge of the Zōr, are desolate expanses of saline marl rising in ridges and mounds often of the conical form above mentioned, and in some places spreading like huge encampments, to which they have been compared. The fertile tracts of the Ghōr lie mostly nearer the hills on either side, especially where brooks come in from the eastern or western ranges. Here there are stretches of gravel, sand, and clay, the drier parts covered by broom and thorn-bush.

The numerous tributaries, many of which carry perennial water, cut the Ghōr at right angles in open and comparatively shallow beds. Most, however, carry torrential water which, as rising far below the ocean level in a soil impregnated with chlorides and sodium, is bitter and often warm (G. Adam Smith). Cane-brakes and oleanders line the banks of many, and there are swamps which cause malaria.

The Hūleh valley which forms the head of the Jordan Section of the Ghōr, is about 20 miles long and 5 miles wide. For the first 5 or 6 miles southward the floor is fertile alluvial plain ; the remainder is largely filled with marshes and lake, the most considerable margin being on the W. side, where the plain is over a mile wide. The surface on either side of the lake is fairly firm, and rich wheat lands come close to the west shore. Towards the south end, the valley narrows to a few hundred yards, being almost enclosed by a low line of volcanic

hills. On the SW. side there are plantations of large eucalyptus trees.

Between Lakes Hüleh and Tiberias the Ghör becomes contracted by the mountains which press in on either hand, and the river gorge which lies close to the east side cuts deep into the basaltic bed. At L. Tiberias it spreads out to over 8 miles and then gradually narrows down towards the S. This area is almost entirely filled by the lake, there being only small strips of plain E. and W.

The breadth of the Ghör for the first 12 miles or so south of L. Tiberias is 3–4 miles. It then expands westward, merging in the plain of Beisān, and, if this be included in its area, here doubles its width. Below W. Māliheh, at the southern extremity of the plain, the hills close in, and the valley is at its narrowest; but it soon expands once more to an average of about 3 miles, widening still farther in the region of Ras Umm el-Kharrūbeh, to reach the breadth of 6 miles at Ed-Dāmieh. There is now a general expansion, especially westwards to the plains of Fasā'il and Jericho, the total breadth soon averaging about 10 miles. This is maintained to about the lat. of Jericho, when it increases to some 14 miles, as a result of the receding bay in the eastern hills through which W. Kefrein and W. Hesbān enter the plain. During the last mile or two the width again contracts, and amounts to about 9 miles at the head of the Dead Sea.

With the exception of the late volcanic basalt of the high ground about its sources, flanking the gorge between L. Hüleh and L. Tiberias, and forming the Galilæan hills down to Beisān, almost all the high country enclosing the Jordan valley is composed of cenomanian or of senonian limestone. Only Jebel Fuqū', W. of the Beisān plain, and the Samarian ridges S. of it culminating in Ras Umm el-Kharrūbeh and Qarn Sartabeh are of miocene rock. A wall of limestone hills rising to the mountains of 'Ajlūn and the Belqa lines the whole eastern side of the Ghör: the only exception on this side is the volcanic rock south of L. Tiberias, especially about the outlet of the Sheri'et el-Menādhireh (R. Yarmūk).

The R. Jordan

The name applies strictly to the river only from the point where it issues from Lake Hūleh, but its real sources rise far to the north in the S.W. base of Hermon, forming a stream known as the Nahr Hāsbāni. The Jordan is a purely inland river, and, so far as is known, is the only considerable river which flows in a valley practically ready-made from head to mouth. Although the usually accepted source of the Jordan is at Bāniyās, the bed of the Hāsbāni lies in the axis of the Jordan valley. It forms a southern continuation of W. et-Teim, which in summer carries only a small amount of water, and drains the valley between Mount Hermon and J. edh-Dhahr, the latter being a low ridge forming the watershed between the N. Hāsbāni and N. Lītāni. The source of the Hāsbāni is at the foot of a volcanic bluff named Ras el-'Aujeh, which forms the end of a ridge running down N. of Hāsbeya. Here a large fountain Neba' Hāsbāni bursts forth in the channel across which a strong permanent dam has been built. Farther up W. et-Teim there is only an insignificant stream from several small springs, but in winter the bed carries a large body of water. About 150 yds. below the dam is the bridge carrying the road to Hāsbeya. Thence the stream winds southwards through a rich valley with gently sloping sides covered with dense foliage by which it is almost concealed. Below Khān es-Sūq it falls rapidly in a deep bed, and is steadily augmented by many springs. Some 5 miles lower down it issues into the great volcanic plain towards Hūleh, in a deep and narrow chasm cut in the higher western plateau. At El-Ghajār it is spanned by a Roman bridge of 3 arches; between this point and Tell el-Qādhi and Bāniyās is a region of running water and woods. About 5 miles below Tell el-Qādhi, it is joined by the united streams of the Leddān, (Edh-Dhān), and the Bāniyās which are the real sources of the Jordan. The Leddān has its source in a great spring issuing from the western side of Tell el-Qādhi, and the Bāniyās has its principal source in the cave of 'Pan'. These streams join a

short distance before reaching the Hās̄bāni and, at the point of confluence, carry a volume of water four or five times greater than the parent stream. A little farther upstream the Hās̄bāni receives on the r. the waters of N. Bareighīt from Merj 'Ayūn.

The trunk, now a considerable river, pursues its course southward through the Hūleh valley, traversing a fertile plain before spreading into marshes. Here the banks are of reddish clay, soft and deep in places; the stream was estimated by Macgregor, 1869, at 30 to 100 ft. wide, with a flood depth of 7 ft.

The Hūleh marshes are about 6 miles long by $1\frac{1}{2}$ miles wide, bounded on the west by a plain 1 to 2 miles wide. They are overgrown with an impenetrable mass of papyrus, 8–10 ft. high, and other water plants said to be 'the greatest solid mass of papyrus in the world' (Masterman); even the narrow winding channel of the stream is navigable only in parts. The northern part of the marshes has been drained and here, at intervals along the western mountains, copious springs provide streams for irrigation; the largest of these is 'Ain el-Mellāhah.

Below the marshes is L. Hūleh (alt. 7 ft.), into which the channel enters at about the middle of its northern end. It is a shallow stretch of muddy water about 4 miles from N. to S., and 3 miles from E. to W.; its area, as well as that of the marshes, is slowly contracting on account of silt and decayed vegetation. The bottom is covered with weeds which grow up nearly to the surface. The lake, marshes, and tributary-streams are abundantly stocked with fish.

On issuing from the lake the river is about 60 ft. wide, and for about a mile the fall is not rapid. Near Jisr Banāt Ya'qūb, which carries the Damascus chaussée, the river begins to fall below the level of the Mediterranean. The channel is here about 80 ft. wide, bordered with oleanders, papyrus, and reeds, and its course lies in a deep basaltic gorge. The river, now a raging torrent, falls 70 ft. per mile for 8–9 miles until it reaches the marshy plain El-Batīhah at the head of L. Tiberias. Here the waters are diverted to many mills, and the muddy and much reduced stream flows through a delta

into the lake at a level of 682 ft. below the Mediterranean. In this latter stretch it is fordable at many points and, although the current is not rapid, the inflow is visible far into the lake.

Where the Jordan issues from L. Tiberias it is a stream of clear sweet water. At the outlet, on the r. bank, there is a promontory of gravel which forms a sort of breakwater and sends the current along the l. bank; at the ford here the bed is of shingle and gravel, with easy shelving approaches. Southward the banks are 15 to 20 ft. high and the stream is from 50–60 yds. wide and 8–10 ft. deep. The water soon becomes heavily charged with sediment, eroded from the marly banks in its sinuous course of about 65 miles crowfly to the Dead Sea, during which it twists about in every direction of the compass. In many places the river splits up into a number of smaller courses. The width, depth, and current vary greatly, but the river may be taken as averaging 70–80 yds. wide and 2–3 ft. deep when not in flood; the speed of the current varies at different points from 2–12 knots per hour. The greatest width of 180 yds. is at its mouth; here the depth is normally about 3 ft. and the current slow.

The Jordan is in flood when the snows melt on Hermon; it reaches its highest point in April, and is at its lowest in late summer. In time of flood it can only be safely crossed by the bridges of Jisr Banāt Ya'qūb about $1\frac{1}{2}$ mile south of L. Hūleh, Et-Tumm immediately south of Tiberias, Jisr el-Mujāmi' about 2 miles south of the confluence of the Yarmūk, Jisr esh-Sheikh Husein opposite Beisān, and Jisr el-Ghōrāniyeh opposite Jericho, which mark the passage of important roads connecting Galilee, Samaria, and Judaea with the trans-Jordanic country from Damascus and the Haurān south to the Belqa. The flood-water covers the whole level of the Zōr, rising to a height of several feet, but the rise above summer-level must vary considerably in different years. The average would appear to be about 5 ft., but Lynch, descending on a falling flood in mid-April 1848, observed recently upturned bushes caught in the branches

of trees N. of Ed-Dāmīeh at a height estimated by him as 15 ft., which indicated a far greater volume of water. When the flood has subsided, which is before May, the immediate banks present a desolate scene. 'The floor of the jungle is covered with deposits of mud and gravel. . . . Dead drift-wood is everywhere in sight. Large trees lie about, overthrown, and the exposed roots and lower trunks of the trees still standing are smeared with mud, except where they have been recently torn by passing wreckage' (cf. Adam Smith). The series of soundings taken by Lynch during his passage down the river are reduced in value through the fact that they were obtained when the water was still too high for crossing at many of the fords. The maximum depth recorded by this traveller is 12 ft., about 3 miles N. of the Dead Sea ; but the water was 10 ft. to 8 ft. just S. of Lake Tiberias, and depths of 10 ft. were recorded between Jisr el-Mujāmi' and the Beisān plain ; not far below El-Mujāmi', 6 ft. were measured, and 7 ft. at Ed-Dāmīeh. The deepest places were at points where the stream contracts, the shallow where it was broadest ; the smallest measurement taken by Lynch was 2 ft. The estimates of speed published by this officer are higher than such as would be obtained later in the year. At some of the rapids which he shot in his metal boats he records 12 knots an hour ; along the flatter reaches, as between Ed-Dāmīeh and the mouth of W. el-'Aujeh, the speed was nearer 3 knots ; 3-4 knots represented the average over considerable distances S. of Beisān. But though the worst rapids are in the northern part of the valley, they are found at intervals far to the south, and mention is made of 'wild and dangerous rapids' between Ed-Dāmīeh and Makhādet Hajleh in the plain of Jericho ; there are said to be 27 major and a greater number of minor rapids distributed along the course of the river between Tiberias and the Dead Sea. From the records of travellers it may be inferred that in the early summer the water at the better-known fords may rise some way up a horse's flanks, and that the bed is for the most part fairly good. The fords of the middle and lower Jordan are very numerous

(between fifty and sixty), but only those have importance which lie upon frequented roads or tracks. Such are those connecting the plain of Beisān with Tell el-Arba'in, Tayyibeh in north 'Ajlūn, and Irbid (Makhādet el-'Abāra, M. 'Ain es-Sauda, M. Wādi et-Tibn); those linking the same region with Fāhil and central 'Ajlūn (M. et-Tumra, M. Sheikh Da'ūd, M. el-Hamra); and those passed by tracks from Tubās to Rājib and Jerash (M. et-Turkmāniyeh, M. Umm Sidreh). There are few fords of practical interest below this last point, Salt being approached from NW. and SW. by main roads from Nāblus and Jerusalem, the crossing being made in the former case by a ferry at Jisr ed-Dāmieh and in the latter by the bridge at El-Ghōrāniyeh. In the Jericho plain the river grows too deep to cross in comfort. At the most southerly (so-called) ford, El-Henu, about 3 miles north of the Dead Sea, a horse must always swim.

The ferry at Ed-Dāmieh consisted, before the war, of a raft or lighter drawn across the river by a steel cable. When not in flood the river may also be crossed at this place by wading: Van de Velde states that when crossing here in mid-May 'the water did not reach much above the knees'. Light bridges, possibly only of a temporary character, are reported to have been constructed across the river near Mafidh Jōzeleh, about 5 miles due south of Ed-Dāmieh.

The great number of tributary wādis falling to the Ghōr are mostly dry in summer, but in winter they carry an enormous volume of water. The chief perennial affluents of the Jordan come in on the l. bank, draining a wide area of the eastern plateau which is more plentifully watered in this region than in northern Syria. Those of the inner slopes of the western range drain a comparatively small area scantily provided with springs, a peculiarity which is even more marked in the section of northern Syria. The mouths of the larger wādis, both perennial and non-perennial, are characterized by deposits of gravel and sediment washed down by the violent winter spates, whose volume and force carry soil from the uplands and cause extensive erosion of the soft limestone formation.

Of the eastern perennial affluents several fall into L. Tiberias at the NE. end, and on the same side of the lake is the considerable stream of W. es-Semak. The greatest eastern affluent of the Jordan is the R. Yarmūk (see pp. 570 ff.) which joins some 5 miles south of the lake. A few miles still farther south the considerable stream from W. el-‘Arāb comes in, and, about 30 miles crowfly farther down, is the N. ez-Zerqa the second largest affluent (see pp. 590 ff.). Between Yarmūk and Zerqa there are a number of small streams from springs in the mountain base. Southward there is no important stream except the Seil el-Mōjib, falling into the Dead Sea (see pp. 618 ff.). N. and S. of this latter there are respectively the perennial streams of W. Zerqa Mā‘īn (Callirhoë) and W. Kerak (see pp. 620 ff.), and at the SE. corner of the sea is the Seil el-Hesa (see p. 638).

Of the western perennial affluents the most important are W. el-Bīreh nearly opposite W. el-‘Arāb (see p. 528); N. Jālūd in the valley of Jezreel (see p. 531 f.); W. Fār‘ah, the lower part of which is named W. Jōzeleh, draining the highlands of Samaria; W. el-‘Aujeh N. of Jericho; and W. el-Qelt which flows close to Jericho. There are no perennial streams of any consequence falling into the Dead Sea on the west, but, on or near the shore, there are copious springs such as ‘Ain el-Feshkkeh, ‘Ain Ghuweir, ‘Ain Trābeh, and ‘Ain Jidi.

Lake Tiberias, Bahret Tabariya, or Sea of Galilee

This lake is irregular pear-shaped with the wide end on the N.; it measures 13 miles from N. to S. and 7 miles from E. to W. at its widest point opposite Mejdal. The surface level, which varies slightly with the seasons, is normally 682 ft. below the Mediterranean; the greatest depth is variously given as from 148 ft. to 200 ft. The water is clear and sweet and is preferred for drinking by the natives to that of the Jordan. The shore for the greater part is a broad pebbly beach with small shells and some stretches of sand; here and there outcrops of basalt occur. In certain parts, such as that westward from the Jordan inlet, again S. of Mejdal on the western shore, and at Qal‘at el-Husn on the east, the mountains come close to

the water. North of Mejdal lies the plain of El-Ghuweir, see p. 534 f.; behind modern Tiberias the mountains recede, leaving a crescent-shaped plain largely covered by the ruins of an ancient city; farther S., a narrow strip of plain runs to the southern end of the lake. A similar narrow plain runs along the eastern shore. On the NE., there is the marshy and very unhealthy plain of Batihah. The slopes bordering the lake are covered with luxuriant foliage in spring; everywhere oleanders are seen.

Many of the wādis which fall into the lake on the eastern side are dry, or nearly so, in summer. The surrounding scenery is picturesque, especially on the eastern side of the lake. On the western shores there are several hot saline springs as at Tābghah and Fūliyah, and also S. of Tiberias, where there are ancient and modern hot baths. The water of the latter is sulphurous with a temperature of 143° Fahr.

The lake is subject to frequent storms and sudden squalls, the cool air from the uplands rushing down the gorges with great violence and making the sea dangerous to sailing craft. Boatmen do not venture far from the shore unless under settled conditions. Since the Haifa-Der'a railway was built steamers ply between Semakh and Tiberias (see p. 551).

Fishing occupies the attention of a large part of the population and is followed more particularly between Mejdal and Batihah. At Tābghah, the fish are attracted by the warm water from the hot springs, and between mid-January and mid-April, fishermen make this hamlet their head-quarters (see further, Chap. XVI, p. 549 f.).

The Dead Sea, or Bahr Lūt

This inland salt sea measures 47 miles from N. to S. and, at its greatest width opposite 'Ain Jidi, measures 10 miles, narrowing to 2 miles opposite the promontory El-Lisān, 'the tongue'; its area is some 340 square miles. The surface level varies according to the season of the year. Besides this, the general level of 1,292 ft. below the Mediterranean, observed during the survey in 1874, is now considerably higher, as is proved

by the little island of Rujm el-Bahr near the north coast which then served as one of the trigonometrical stations, but is now submerged. Many trees standing off the shore are now completely submerged. The form of the coast-line has therefore considerably changed in recent years. The greatest depth of the sea, on the E. side 10 miles S. of the Jordan inlet, is given as 1,278 ft.; the trough drops very abruptly on the eastern side but shelves down more gradually on the western, especially at the northern end, where it is affected by the Jordan silt.

Various theories have been advanced to account for the general rise in the level of the Dead Sea in historic times. The principal cause appears to be the vast volume of sediment which is washed from the soft limestone of the adjoining highlands during the winter spates. At the mouths of the numerous wādis, deltas project into the sea, spreading over several square miles and strewn with boulders carried there by the torrents. Wright estimates the area of the Jordan delta alone at 15–20 square miles. The great volume of evaporation, estimated at 20,000,000 cubic ft. per diem, on the one hand, and the water brought into the sea together with the displacement by siltage, on the other, are probably the principal factors which determine the level.

A striking feature in the configuration of the Dead Sea is the Lisān promontory, which juts out from the eastern shore more than half way across the sea and forms a small bay which faces north. This bay shelves very gradually and is largely silted up by the floods from W. Kerak and W. Beni Hammād. South of Point Molyneux, the northern end of the promontory, the water, at its deepest, is not more than 15 ft. At high water it spreads for a mile southward over the salt flats or *sabkheh*. In 1818 travellers reported seeing Arabs fording the sea from Pt. Molyneux to the western shore, but in 1838 this ford was reported as impracticable. Within the memory of old natives a well-known causeway was passable for sheep from the Lisān to W. Umm Bagheq; camels and mules could cross anywhere in this neighbourhood.

The water of the Dead Sea is heavily impregnated with saline, mostly chlorides of sodium, magnesium, and calcium, yielding 26 per cent. of mineral salts as compared with 6 per cent. in the Atlantic Ocean. It is consequently exceedingly buoyant and on account of the high specific gravity (1.166) the storm waves are destructive to craft. For the same reason storms quickly subside and in general the appearance of the lake is dark and dead. The water is destructive to all forms of animal life and fish are only found where it is diluted by fresh water from perennial streams and springs.

Wind storms blowing through the length of the sea are frequent. An interesting fact is recorded by Cady, who, in February 1900, noticed strong currents setting northward along the eastern shore. He suggests as explanation that the southward flow of the central Jordan current striking the promontory of Lisān, is returned by side currents E. and W.

The Shores of the Dead Sea. Immediately west of the mouth of the Jordan lies a shelving shore-plain, pebbly in places or covered with light salt-washed soil in others. Then follows a belt of reedy marshes to 'Ain Feshkhah. The promontory of Ras Feshkhah here projects to the waters edge; then for about 15 miles southward there is a beach of sand and gravel about 1 mile wide, while opposite Wādis ed-Darajeh and Hasāsah the width is over a mile. At Ras Mersed the passage along the shore is again obstructed, but beyond it there is no obstruction on to Jebel Usdum. The plain of 'Ain Jidi measures 1 mile by $\frac{1}{2}$ mile. Between 'Ain Jidi and Sebbeh (Masada) a distance of 10 miles, the cliffs recede to 2 miles from the shore and the plain is intersected by numerous wādis, at the mouth of each of which is a delta. The cliffs of Ras Mersed, 'Ain Jidi and Sebbeh are prominent features on the western shore. J. Usdum runs some 8 miles along the SW. angle of the sea, rising sheer from the water. The lower 200 ft. of the cliffs consist of transparent rock salt seamed by perpendicular fissures.

Many of the springs along the shore-plain at the base of the western mountains are warm and give rise to oases of varying extent and character. 'Ain Feshkhah (temp. 70°-80.5° Fahr.).

the strongest of a group of numerous springs of perennial but brackish water, forms a large pool in a considerable area of dense reed and other growth. 'Ain Ghuweir (temp. 96° Fahr.), 100 yds. from the shore, is concealed in a belt of very tall reeds which extends longitudinally for about $1\frac{3}{4}$ mile; 'Ain Trābeh is situated in a thicket of reeds and clumps of tamarisk. 'Ain Jidi (temp. 84° Fahr.), the finest of all the springs on the western shore, issues from below a mass of rock on to a shelf of the mountain cliffs, at an elevation of about 600 ft. above the Dead Sea. The stream gives rise to an almost impenetrable thicket of reeds and thorny scrub in its downward course to the shore, and, at the foot of the mountain, forms a small oasis which bears vegetation and sparse cultivation.

At the S. end of the sea there are a great number of shoal-like promontories, and the bed of the Ghŏr here consists of mud flats with saline deposits, large parts of which are flooded at high water. For further description of the southern shore of the Dead Sea, see p. 663; and for description of the eastern shore, see p. 616 f.

Climate

The climate of the Jordan valley and of the Dead Sea is almost tropical, in character. Owing to great depth of the depression, the flanking highlands shut out the breezes from sea and plain, and the heat during summer from the cliffs around the Dead Sea adds to the extreme oppressiveness of both days and nights. The enormous amount of evaporation also spreads a low-lying haze and the heat is comparable to that of a forcing-house.

The temperature at Jericho in August has been known to rise to 120° Fahr. while the sun's rays in the Ghŏr and lower wādis are blistering and almost unbearable. In winter the days are hot, but the nights are often pleasantly cool. (See further, Chap. II, p. 45.)

Throughout the Ghŏr generally malaria is prevalent and, S. of Beisān, even the natives migrate periodically to the

highlands. Those who live most of the year in the lower Ghŏr are sickly and degenerate. In the southern Ghŏr the harvest is a month or six weeks earlier than in the maritime plain and from two to three months earlier than on the neighbouring highlands. (*Post.*)

Agriculture

Production has in the past been much restricted because of the lack of sufficient irrigation, without which the fierce heat quickly parches everything. The channel of the Jordan is mostly too deep to admit of simple irrigation systems, but there are many square miles of land to which its waters, and in particular those of its affluents, are easily adaptable. On the E. side, between the Yarmūk and W. Fāhil, there are sufficient streams to irrigate the whole of that region, which bears good grain crops without elaborate irrigation. The tropical climate is said to be favourable to the culture of cotton, rice, sugar-cane, indigo, and dates, besides the usual cereals, fruits and all kinds of vegetables.

Between Lake Tiberias and the Dead Sea, the soil of the Zŏr is mainly unsuitable for cultivation. The soil of the Ghŏr itself, especially toward the hills, is mostly good and has been reported by Egyptian experts to be admirably suited in certain parts to the cultivation of cotton. Experiments in cotton-growing have been made from time to time. In one year, some 580 Egyptian feddans were put under cultivation near Beisān with results which in the main justified the experiment. Landowners decided later to extend the experiments by putting an area of 2,000 feddans under cultivation (Weakley). One of the most serious difficulties was the scarcity of labour during picking time (see further, p. 489 f. and p. 546).

Considerable areas, chiefly on the very fertile parts of the western shores of Lakes Hūleh and Tiberias, as well as in the valley between these two, and also south of the latter, are cultivated by Jewish colonists, see I.D. 1203. Experiments in cotton, tobacco, and cocoon cultures here met with little success, and the land is now almost entirely under cereal crops.

Much of the middle Ghŏr is cultivated by the people of various villages of Samaria, and a great part of the eastern side was at one time cultivated by the natives of 'Ajlūn who were afterwards crowded out by the extension of the Sultan's estates—the *Jiftlik Hamayūni*. These state farms covered a considerable total area and both Fāhil and Arba'in were administrative centres under the mudir of Beisān, who was the chief administrator of the Ghŏr. There are other state farms in the neighbourhood of Jisr Banāt Ya'qūb and also in southern Ghŏr. Although improvements were introduced and some experiments made, little progress appears to have resulted in developing these lands; they are farmed out to the natives of the Ghŏr and cultivated on the *métayer* system (see Chap. VI, p. 249 f.).

Both the plain of Beisān and that of Jericho are considered to have great agricultural possibilities, given well-directed irrigation and good administration. In the former, flax was abundantly grown in the Roman period; maize and rice were cultivated in crusading and later times. Towards Jericho date-palm groves stretched for miles and gardens of balsam were farmed by the Roman government. Before and during the Crusades, sugar-cane was cultivated, and remains of the sugar mills still exist. Of existing irrigation canals in the Ghŏr, two, each $4\frac{1}{2}$ miles long, run south from W. el-'Arāb to Zŏr el-Bāsha and water a tract which produces two- and three-fold crops. Several copious springs on the west side of Lake Hūleh, the chief of which is 'Ain el-Mellāhah, supply water for irrigating the plain there. With proper irrigation there is no region where results would be swifter or richer than in these fertile tracts of the Ghŏr. Although the climate in summer is unsuitable for Europeans, it is quite possible for negroes.

Inhabitants

Very few Bedouin live continuously in the Ghŏr. The effect of the climate is shown in the sickly and degenerate appearance of those who are more particularly confined to

this region and who, in summer, seek the comparative relief of the higher slopes, occupying their upland tribal territory in the mountains on either flank.

The distribution of the Arab tribes fluctuates in various districts and the statistics of early authorities are unreliable. The following incomplete table of tribes is compiled from Schumacher's maps 1908-11, from various articles, and from *A tribal Handbook of Syria*.¹

The Eastern Ghŏr :

The Sukhūr el-Ghŏr, about the Yarmūk and W. el-'Arāb ; they also cultivate the district of Delhamīyeh, in the Western Ghŏr.

The Ya'qūb el-Fādil and the Rāja, about the W. el-'Arāb district.

The Beni Sakhr, about Tell el-Arba'in.

The Balāwaneh, about the lower W. Rājib.

The Mashālkha and the 'Abbād, about the lower N. ez-Zerqa.

The Western Ghŏr :

The Sukhūr, the Hamādi, and the Beshatwi, between W. el-Bireh and Beisān plain.

The Sīyr and the Ghazzawīyeh, in the Bieisān district.

The Masā'id, about W. Fār'ah.

The K'ābneh el-'Aujeh, about W. el-Aujeh.

The Ghawārneh, in the plain of Jericho.

The Sawārhereh, about Jericho and Nebi Mūsa.

The 'Ubeidiyeh and thê Ta'āmireh, from the Jordan mouth to Ras Feshkhah.

The Rashā'ideh, about 'Ain Jidi.

The Beni Sakhr are the most powerful of these and they now constitute the chief tribe of the southern trans-Jordan country. The Bedouin of the Ghŏr are cultivators and stock raisers some tribes having a proportion of low class fellahin. Certain of the lower class tribes, such as the Ghazzawīyeh and the Ghawārneh, have become fellahin and are tenant cultivators of the state lands. An estimate of the numbers occupying the Ghŏr proper, at any one time of the

¹ Prepared by the Arab Bureau, Cairo ; provisional edition, 1918.

year, is difficult as the tribes generally utilize the arable and pasture lands on the lower slopes, in the tributary wādis, and on the adjoining highlands as well.

WĀDI 'ARABAH

Physical Features

The great depression known as the Wādi 'Arabah, so wide that in parts it suggests a plain rather than a valley, prolongs to the Gulf of Akaba the cleft between the high country to east and west begun by the Jordan and the Dead Sea. It is not a continuous trough with a slope in one direction, but is divided by a watershed near the middle into two parts, of which the northern is the longer by some ten miles. The line of this watershed, as determined by Lieut. Vignes of the French Navy, is a curve with a general direction varying from SW. to NE., lying between $30^{\circ} 8'$ and $30^{\circ} 14'$ N. latitude. As the Dead Sea level is about 1,270 ft. below that of the Gulf of Akaba, while the altitude of the watershed at its highest point is not far from 800 ft., the average gradient of the northern slope is the steeper, with a rise of about 2,000 ft. in some 60 miles as against a rise on the southern slope of 700–800 ft. in 50 miles. The surface is generally hard, and where not traversable by light wheeled traffic could be made so; there are no greater obstacles than those of occasional sand or marsh mentioned below, all avoidable without much difficulty, and possibly a steep pitch at the south end of the watershed. The valley is broadest in the north, contracting to the watershed and beyond, and once more widening to the south, though with a less expansion. It is enclosed along both its sides by escarpments, forming walls only broken by the wādi-gorges which enter from east and west. These rocky walls are in places precipitous, especially in the east, where the main crest of the interior heights is nearer than on the west, and the descending steps into the valley are narrower. The one part where they sink to insignificance is in the region of the watershed; here the

western hills are low, and can be entered without difficulty, though their intricate and broken surface does not encourage exploration. The geology of the region is summarized elsewhere (see p. 613 f.); here it may be noted that the prevailing rock is limestone, though crystalline rocks are found in the south-west, while sandstone appears in many places on the eastern side.

The general character of the 'Arabah may now be briefly described, proceeding from the watershed northward to the Dead Sea, here named the Northern slope.

The Northern Slope.—On this side an easy incline leads down the right bank of the Wādi Heyāneh to the plain of El-Bāhah lying twelve miles away at the junction of this wādi with the great Wādi el-Jerāfi, which comes from the south-west; the watercourse thus formed becomes the main wādi of 'Arabah, and under the names of Wādi el-Ghamr and Wādi Jeib, runs continuously to the Ghōr and the Dead Sea, with a course as long as that of the Jordan valley. Gravel plains succeed, after which the wādi traverses more or less open ground, with gravelly ridges or flats at its sides. But about thirty miles beyond El-Bāhah it enters a limestone gorge ten miles in length, with abrupt walls ultimately rising to a height of some 200 ft., and impassable broken country to a depth of two or three miles or more on each side; from this gorge it issues into the Ghōr, a line of limestone cliffs curving to right and left, and forming a kind of amphitheatre round the south end of that depression. The western border of the northern slope has too much gravel or rough limestone, and is too frequently cut up by wādis for cultivation; but along the east side the reports of more than one traveller describe expanses of cultivable plain. About the Wādi Fedān (Ifdān) and the Wādi et-Telāh, remains of ancient terraces show that wide tracts, now barren, once supported a considerable population. 'There is little doubt that all the east side of the valley was once a most fertile district, the streams of water in each valley being used to irrigate gardens and extensive

cultivation' (Kitchener, 1883). This side of 'Arabah may have, in addition, some mineral wealth. At Fīnān, in Wādi Fedān (13 miles south of Wādi Dākhel, and the same distance east of 'Ain el-Weibeh), was a copper-smelting town, the ores being brought from the hills to the north; it is doubted, however, whether these would repay exploitation at the present day. (Dalman.)

The link between the Dead Sea and W. 'Arabah is formed by a *sabkheh*, or bare marshy lowland with saline efflorescences. It is traversed by watercourses from both sides, and only to be crossed after heavy rains on tracks known to the Arabs. The Sabkheh cannot indeed be passed without difficulties of transport except in the dry weather, the very time when the heat, the mosquitoes, and the flies make its passage almost unendurable to white men and to all animals not bred to such conditions. Its extent varies with the level of the Dead Sea, which is affected both by seasonal and by periodic change; in 1883 its length was estimated at ten miles, but it is now much less. The Sabkheh proper is muddy or marshy ground; but on its eastern side are two fertile patches or oases, Es-Sāfiyeh and El-Feifeh, occupied by Ghawārneh fellahin. Each place has a village of tents or reed huts, more or less permanently occupied, though in hot weather the people withdraw to the surrounding hills. The larger village, Es-Sāfiyeh, is at the extreme north-east corner, close to the sea, and south of the Seil el-Qerāhi, the name given to the lowest section of the great Wādi el-Hesa, which issues from the hills through a sandstone gorge on the east. The perennial water of the seil is distributed over the adjoining tract by numerous irrigation-channels, and renders possible an extensive cultivation. Tobacco, wheat, barley and dhura are sown in January, maize and indigo in March; white grapes are grown on trellises, and water-melons and cucumbers produced in numbers. Cattle are kept, small in size and usually black with white faces; there are herds of sheep and goats, donkeys, and fowls laying small eggs. El-Feifeh, rather more than five miles south of Es-Sāfiyeh, is separated

from it by a barren expanse of sand-dunes; its position relatively to the Seil el-Feifeh, or Nahr Tafileh (as the lower Seil ez-Zerqa is here sometimes called), is similar to that occupied by the larger village to the Seil el Qerāhi, and its cultivation is of a like nature; in 1912 it was said not to be inhabited. About the two oases there are various trees and bushes, including three species of acacia. As the traveller proceeds northwards towards the Dead Sea, these trees are replaced by tamarisk, poplar, castor-oil, and 'ushr (see p. 105). There follow swampy patches with jungles of grasses, and salt patches, ending in a foreshore of barren saline mud or sand. Among the fauna of the Sabkheh may be mentioned boars (plentiful in the reed-beds), and jackals, with very numerous birds—doves, duck, snipe, buzzards, owls, hawks, and smaller species.

The Southern Slope.—The southern slope of W. 'Arabah is distinguished by the absence of any great central water-course running the whole way from the watershed to the sea. In the twenty-five miles north from Akaba, where the valley is broad, the water which comes down after rains is absorbed by two large mud-flats, transformed into lakes in winter, but separated by a barrier of boulders from two opposite wādīs, Menā'iah on the west and Muhtedi on the east. The southernmost, known as Ed-Defīyeh, or Sabkhet Defīyeh, begins some five miles north of Akaba, and runs north for about seven miles, with an average breadth of two miles, the main track up the wādi following its eastern side. The more northerly, Et-Tābah, begins some eight miles farther north, and has an almost equal superficies, though a less regular shape. Wells of importance to travellers are situated on the edge of these flats: 'Ain ed-Defīyeh at the north-east corner of the first; 'Ain Tābah and 'Ain Ghadyān on opposite sides of the second. On and about the marshy ground, there is extensive vegetation—reeds, *sommar*, *halfa* and palm scrub—while east of Tābah, Musil crossed expanses of saline plain and dunes overgrown with *ghadha* bushes. A few miles north of Et-Tābah, the 'Arabah contracts and its floor begins to be

covered with shifting sand which extends for some twelve miles, though along both sides there is flat hard ground. This sandy stretch ceases near Wādi Gharandel, which descends from the east side, with a spring near its mouth, a usual halting-place for travellers. North of this wādi, a long stony slope leads for some ten miles to the watershed, which ends abruptly on its southern and eastern sides. The north-east part of the watershed is formed by a ridge, Jebel el-Rīsheh, or Rīshet el-Hawar, south and north of which run tracks connecting Egypt and Syria with Petra and the Hejaz Railway.

Communications

The 'Arabah forms a natural and direct highway between two seas; the only serious obstacle to its use is the fierce heat of a valley enclosed within rocky walls and running for nearly a quarter of its length below the level of the Mediterranean. In ancient times an extensive traffic passed up and down it; ruins of fortified posts attest the importance which it still retained under the Roman and Byzantine Empires. But even in those days, lateral routes crossing it, or running into it to follow a part only of its course, came to rival or excel it in importance; roads from the eastern plateau and across north Sinai carried an increasing share of the world's commerce, for the most part approaching or leaving the great valley by tributary wādis—on the east by Wādis Yitm, Gharandel, Khusheibeh, and Dākhel; on the west by Wādis Heyāneh, Jerāfi, and Murrah (Fīqreh). But after the triumph of Islam, its value to the world declined; and in modern times the rise of steam communication by land and sea, the shifting of the great trade-centres, and the absence of a strong local government have combined to make this region one of the least frequented parts of the nearer East. If commercially it may be described as dead, strategically it may yet know some revival. Akaba commands the direct route to Ma'ān up the Wādi Yitm. The Romans had a fort and post at 'Ain Hosb commanding the approach to the passes above the Wādi

Marrah (Naqb es-Sefei, Naqb el-Ghārib); and it has already been observed that should the present frontier of Egypt be moved northward, these passes might regain something of their old military significance.

There are no food supplies along the whole length between Akaba and the Ghōr, but grain, cattle, and sheep in moderate quantities could be brought from Es-Sāfiyeh. When the pasture in Sinai is known to be good, flocks of sheep from the Haurān and the Belqa for sale in Egypt are driven down through El-Jibāl and across 'Arabah. Such flocks were seen by Jaussen on the hills just north of the watershed in spring, at which time alone they would be met.

Water-supply.—Under present conditions the wells and springs on both sides of the valley supply enough water at intervals for small caravans, which permits the use of horses, though all baggage must be carried by camels. The following are the more important springs and wells in Wādi 'Arabah naming from north to south: On the northern slope: 'Ain 'Arūs, 'Ain el-Qaseib, 'Ain Hosb, 'Ain el-Weibeh, El-Ghamr, and Bir Meleih. On the southern slope: 'Ain el-Bi'ār, 'Ain Gharandel, 'Ain Tābah, 'Ain Ghadyān, and 'Ain Defiyeh, the latter $11\frac{1}{2}$ miles north of Akaba. Were the 'Arabah to be used for the passage of troops, provision for the storage of water would have to be made at all wells on the route which do not, like 'Ain el-Weibeh, 'Ain Hosb, and 'Ain 'Arūs, yield a reliable and fresh supply. This would be especially necessary on the southern slope, where there are fewer good wells; and in any event the water in several places (e.g. 'Ain Defiyeh, 'Ain Ghadyān, El-Ghamr) leaves much to be desired in point of quality.

Fauna and Flora

The chief wild animals found in the 'Arabah are the panther, hyena, wolf, fox, gazelle, on the flat ground (*qā'*) under the escarpments, ibex on the rocky hills to east and west, wild cat and jerboa. Scorpions and snakes also occur,

the most dangerous of the latter being the horned viper which is sometimes deadly to grazing beasts.

The flora includes various types of acacia, palm-scrub with a few tall palms (no large groves except at Akaba), and the thorny scrub described as growing in the Southern District (see Chap. XIV, p. 468). The *ghadha*, a bush with fresh green leaves growing many feet high and forming lines like hedges, is found in the sandy places ; it affords grazing for camels, but may cause diarrhoea ; its wood gives a clear fire and is thus a useful fuel.

Inhabitants

With the exception of the inhabitants of Akaba in the extreme south, and of the above-mentioned Ghawārneh fellahin at Es-Sāfiyeh and El-Feifeh on the edge of the Sabkheh, there is no settled population in or very near the 'Arabah. The chief Bedouin tribes which range the valley are the Sa'īdiyīn, about the middle, and nearer Akaba, the Huwāt, who come down from the desert hills on the south-west (see p. 642).

APPENDIX

(Cf. *Handbook of Arabia*, p. 618.)

CONVENTIONAL SPELLINGS.

Acre	' <i>Akka</i>	Islam	<i>Islām</i>
Akaba	' <i>Aqabeh</i>	Jaffa	<i>Yāfa</i>
Aleppo	<i>Haleb</i>	Jericho	<i>Eriha</i>
Alexandretta	<i>Iskanderūn</i>	Jerusalem	<i>El-Quds</i>
Antioch	<i>Antāqīyeh</i>	Kadi.	<i>Qādhi</i>
Ascalon	' <i>Ashqalān</i>	Kaimmagam	<i>Qā'im Maqām</i>
Bedouin	<i>Bedāwi</i>	Kaza	<i>Qadha</i>
Beersheba	<i>Bir Seba'</i>	Koran	<i>Qur'ān</i>
Beirut	<i>Beirut</i>	Lebanon	<i>Libnān</i>
Bethlehem	<i>Beit Lahm</i>	Mecca	<i>Mekkah</i>
Caesarea	<i>Qaisāriyeh</i>	Medina	<i>El-Medīnah</i>
Caliph	<i>Khalīfah</i>	Moslem	<i>Muslim</i>
Carmel	<i>Kurmul</i>	Mudir	<i>Mudir</i>
Damascus	<i>Dimishq, Esh-Shām</i>	Mudiriyyeh	<i>Mudiriyyeh</i>
Dead Sea	<i>Bahr Lūt</i>	Nahiyeh	<i>Nāhiyyeh</i>
Dervish	<i>Darwīsh</i>	Nazareth	<i>En-Nāsirah</i>
Druse, Druses	<i>Durzi, Durūz</i>	Orontes	<i>El-'Āsi</i>
Emir	<i>Amīr</i>	Qantar	<i>Qantār</i>
Euphrates	<i>El-Furāt</i>	Saladin	<i>Salāh ed-Dīn</i>
Firman	<i>Firmān</i>	Sherif	<i>Sherīf</i>
Fellah,	<i>Fellāh,</i>	Sidon	<i>Saida</i>
Fellahin	<i>Fellāhīn</i>	Sultan	<i>Sultān</i>
Feddan	<i>Feddān</i>	Syria	<i>Sūriya</i>
Gaza	<i>Ghazze</i>	Tiberias	<i>Tabariya</i>
Gilead	<i>Jil'ād</i>	Tripoli	<i>Tarābulus</i>
Hebron	<i>Khalīl er-Rahmān</i>	Tyre	<i>Sūr</i>
Hejaz	<i>Hejāz</i>	Vali	<i>Wālī</i>
Imam	<i>Imām</i>	Vilayet	<i>Wilāyah</i>
		Vizier	<i>Wazīr</i>

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